MTC GOODS MOVEMENT STUDY

TASK 4 REPORT

EXISTING CONDITIONS AND TRENDS REGARDING REAL ESTATE, LAND USE AND COMMUNITY FACTORS WITH IMPLICATIONS FOR GOODS MOVEMENT INDUSTRIES

Prepared by
HAUSRATH ECONOMICS GROUP

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1212 BROADWAY, SUITE 1500, OAKLAND, CA 94612-1817
T: 510.839.8383 **F**: 510.839.8415

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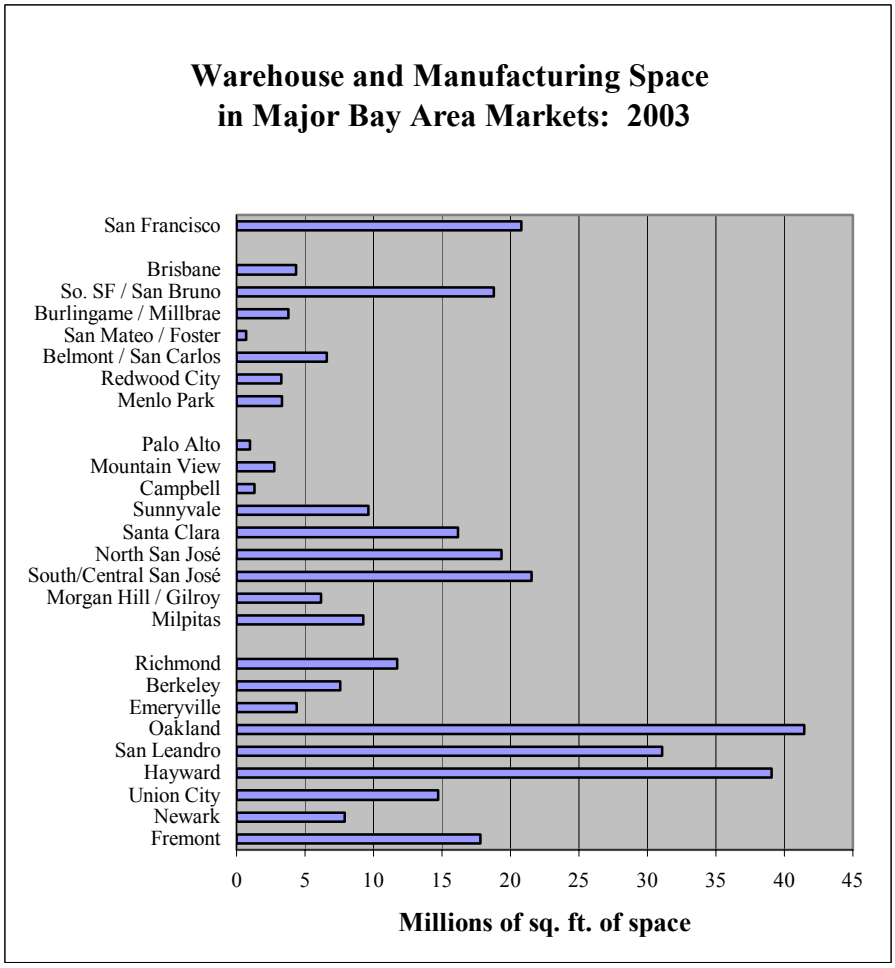
REAL ESTATE, LAND USE, AND COMMUNITY FACTORS INFLUENCING GOODS MOVEMENT INDUSTRIES: EXISTING CONDITIONS AND TRENDS

This report presents the findings and conclusions of Task 4 of the *Regional Goods Movement Study* for the San Francisco Bay Area. The report describes location factors relevant to goods movement industries in terms of the real estate market, regional development patterns, and local land use policies and other regulations. The report presents data on existing locations for goods movement activities serving the Bay Area market as well as forecasts of future development patterns that will affect location options for this sector in the future. Development trends as well as an alternative scenario for future regional growth indicate increased demand in the Bay Area for goods movement services concurrent with a reduction in affordable, close-in location options for goods movement businesses. These forces raise economic, transportation, and land use policy questions for local and regional planners and decision-makers. To set the stage for identifying and evaluating policy options in Phase II, the report concludes by discussing how real estate market forces and local land use policies and regulations both work independently and interact to influence location options for goods movement industries.

Where is industrial space for goods movement industries located?

The current locations of goods movement industries in and around the Bay Area reflect the region's history of urbanization and the development of transportation systems to serve the region's markets. Industrial space that houses goods movement businesses remains concentrated along the major transportation corridors that ring the central and southern parts of San Francisco Bay.

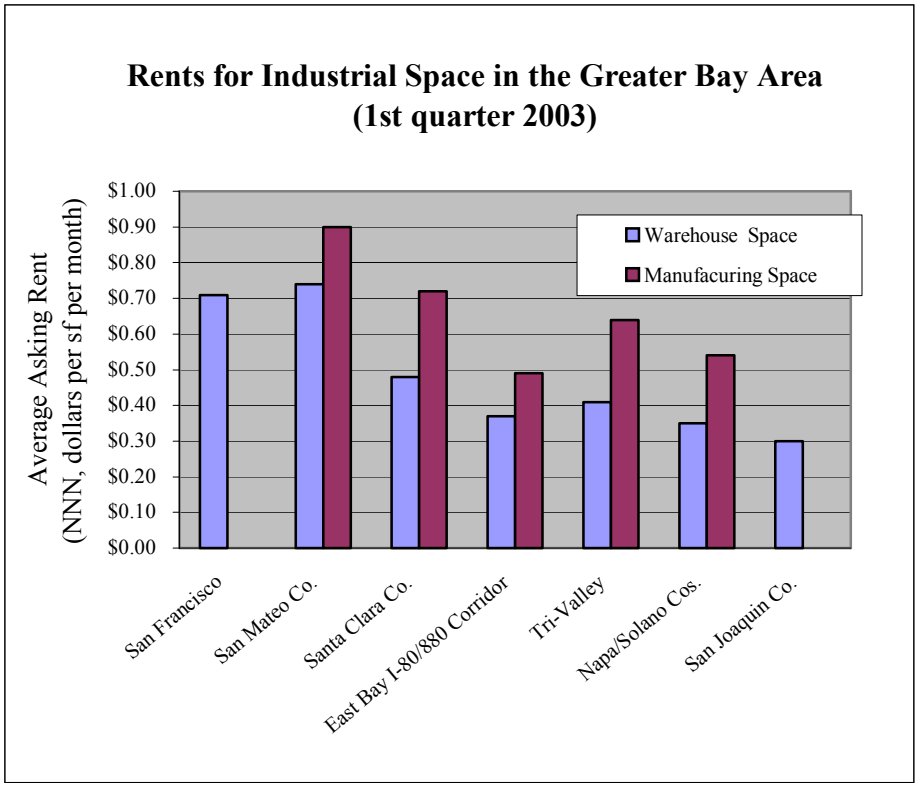


The largest amounts of industrial space are located along the I-80/880 corridor in the Inner East Bay, around the southern parts of the Bay in Santa Clara County, in northern San Mateo County, and in San Francisco. Industrial locations in these central areas offer proximity to the largest business and population centers in the region as well as to the region's airports and seaports. Bay Area freight flows are concentrated along these corridors.

Following major transportation corridors and markets in developing areas, newer industrial and warehouse space appears in more outlying parts of the region such as the I-80 corridor in Solano County and serving Napa County, near Highway 101 in Sonoma County, and in the Livermore/Tri-Valley area along I-580. Beyond the nine-county region, there is a large supply of land and space for transportation, distribution, and warehouse uses in San Joaquin County, serving growing Bay Area markets from the Central Valley's primary distribution corridors: I-5 and Highway 99.

Costs of industrial space are affecting location choices of goods movement businesses.

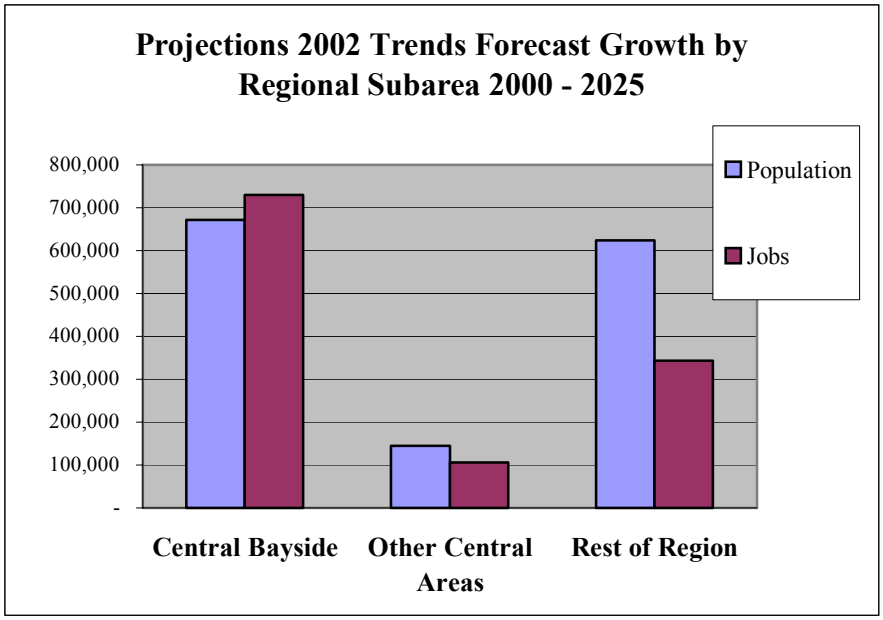
The significant variation in rents for industrial and warehouse space throughout the greater Bay Area reflects supply characteristics, availability of land for expansion, and competitive demand from uses that will pay higher rents. Among central bayside locations, industrial rents are highest in San Francisco and northern San Mateo County and lowest in the East Bay I-80/880 corridor.



In these central areas, rents for industrial space have been increasing over time, independent of cyclical economic effects. Rents in more outlying Bay Area locations and in San Joaquin County are one-half to two-thirds of those in more costly central bayside locations. Industrial rents in those market areas where there is more potential for expansion and less competition from other uses have been more stable over time. Differences in the costs of industrial space and trends in rents over time have contributed to the growth of warehouse, distribution , and transportation uses in outlying, lower-cost locations such as those in San Joaquin County.

Growth and intensification in the central bayside parts of the region will reduce the supply of closer-in affordable space for goods movement industries.

To understand Bay Area development patterns and trends, it is useful to consider three subareas. The **central bayside area** (San Francisco, San Mateo County cities along the 101 corridor, Santa Clara County cities along the 101/880 corridor, Alameda County cities and unincorporated areas along the I-80/880 corridor, Contra Costa County cities along I-80, and Solano County cities in the I-80/780/Carquinez area) includes the region's central cities and its oldest and most dense urban development; this area has been an important location for industrial and goods movement uses, as described above. An **inner ring of suburban development** (Marin County, central Contra Costa County, and western parts of San Mateo and Santa Clara Counties) captured lower density growth in the post-World War II decades; land to accommodate more development has become scarce in these areas. As a consequence, more recent development trends show high rates of growth in **outlying communities on the edges of the region** (southern Santa Clara County, the Tri-Valley areas of Alameda and Contra Costa counties, eastern Contra Costa County, northeastern Solano County, Napa County, and Sonoma County) where there is a supply of vacant land.



According to ABAG's *Projections 2002* Trends Forecast, over the next 25 years, 62 percent of regional job growth and 47 percent of regional population and housing growth are projected to occur in the **central bayside areas** of the region. There has been renewed interest in development in the older central parts of the region. This reflects a shift in preferences to closer-in, more convenient locations that had been passed over in prior decades in favor of suburban development. The most change from past trends of the 1960s through 1980s appears in the future growth projected for East Bay cities along the I-80/880 corridor.

This projected pattern of Bay Area growth will result in more population and business activity and increased need for goods movement services and associated truck deliveries in the central parts of the region. At the same time, increased demand from higher-rent paying, higher-value uses, in conjunction with local government incentives for redevelopment to enhance the local revenue base, will increase development pressures on centrally-located land, including that traditionally occupied by industrial and goods movement activities. The competition for land reduces the availability and increase the costs of space in the remaining central bayside industrial locations. This is particularly the case for the older warehouse and industrial space along the I-80/880 corridor in the East Bay and the older industrial space remaining in the eastern parts of San Francisco and South San Francisco/San Bruno areas of the northern Peninsula.

The region will also continue to expand outward to the east, north, and south as both businesses and households seek more affordable options in outlying locations.

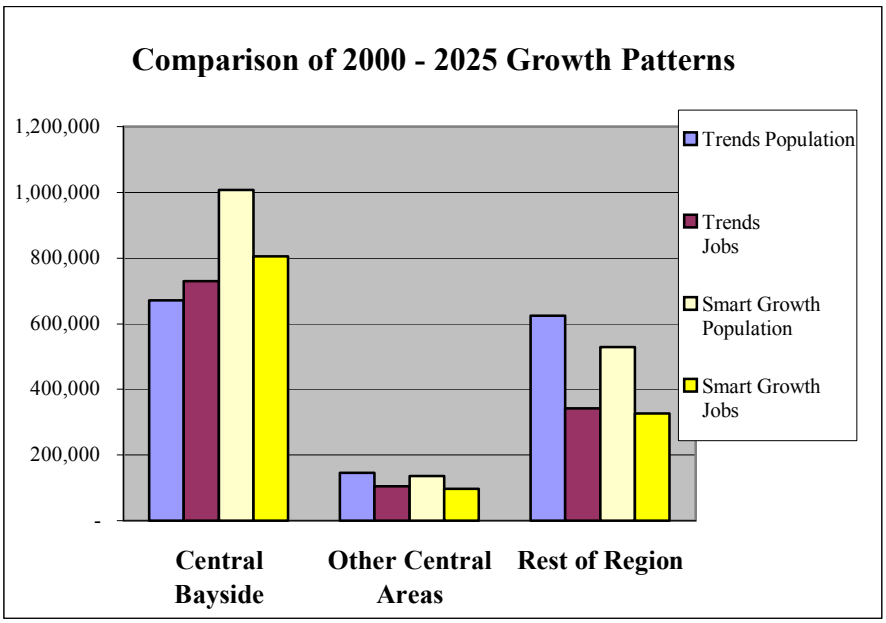
ABAG's Projections 2002 Trends Forecast shows about 43 percent of Bay Area population and housing growth and 29 percent of regional employment growth occurring in the **outlying parts of the region** beyond the inner ring suburbs. The percentage change projected for outlying areas is substantial—between 2000 to 2025, population increases 44 percent and employment increases 57 percent.

For the goods movement industry, the continued expansion outward means that the major transportation routes around the Bay and connecting to points east will become increasingly important. The importance of the I-580 corridor connecting the Bay Area to warehouse, distribution, and transportation locations in San Joaquin County will grow. From the perspective of goods movement, the "economic region" will continue to extend beyond the nine Bay Area counties to include points east in San Joaquin County.

These real estate market forces and growth trends raise important questions about location options for goods movement activities.

To reduce space costs and the costs associated with land use conflicts that emerge in centrally-located, increasingly mixed-use environments, goods movement activities will continue to choose locations at the edge of the nine-county region and beyond that offer lower rents and more efficient space layouts. There are trade-offs, however. Increased distances between growing, centrally located markets and more remote distribution centers mean increased travel times, higher fuel costs, increased miles traveled, and potentially increased emissions. Considering development trends and market forces, providing an alternative to the outward trend would require land use policy and other interventions to preserve closer-in locations for goods movement activities. More work should be done to evaluate these impacts in more detail as a precursor to developing such policies.

Successful implementation of the Smart Growth Vision for land use in the Bay Area will intensify the competition for central bayside locations.



The Smart Growth Vision for the Bay Area would alter land use decision-making as well as various public investments to achieve a more compact regional development pattern. ABAG's recently completed *Projections 2003* Smart Growth Forecast illustrates a scenario for implementation of smart growth strategies throughout the region;

the projections show 50 percent more population and housing growth in the central parts of the region over the next 25 years and 15 percent lower population growth in the outlying areas, compared to the *Projections 2002* Trends Forecast. Moreover, under the Smart Growth Forecast, there is 16 percent more population growth in the region overall, compared to the Trends Forecast.

More development on infill locations in the central parts of the region under the Smart Growth Vision would mean substantially more reuse and redevelopment of lands currently or formerly in transportation, industrial, and commercial uses. Nearly all (90 percent) of the additional population and housing growth forecast for the central bayside parts of the region under the Smart Growth Forecast is anticipated to occur in the cities with the largest amounts of remaining industrial space along the major transportation corridors around the Bay. Of particular note are the large increases in growth shown for San Francisco, South San Francisco and San Bruno, San José, San Leandro, Oakland, and Richmond, all of which currently include large amounts of the region's supply of industrial space.

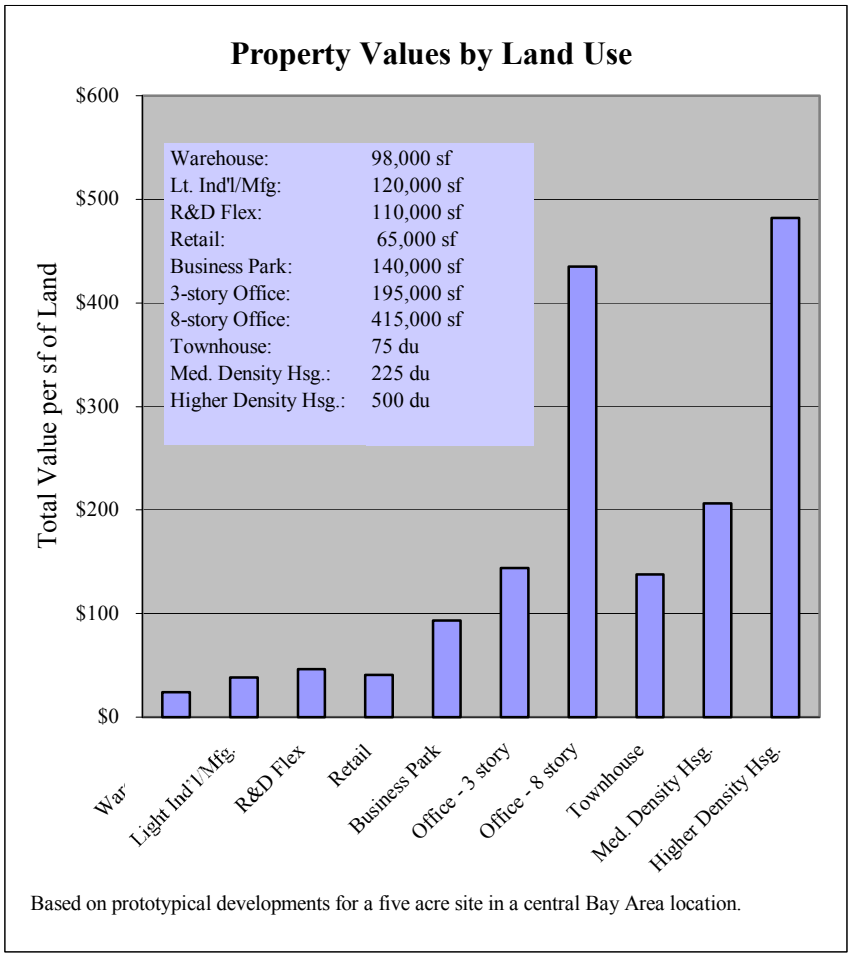
For goods movement, the Smart Growth development scenario would accentuate the real estate market pressures and potential for land use conflicts already apparent in on-going regional development trends. There has been no focused evaluation of the implications of the Smart Growth Vision for goods movement and goods movement industries in and around the Bay Area region. Policy evaluation focusing on goods movement impacts could broaden the range of regional concerns to be addressed by the Smart Growth Vision. It may suggest the need for land use strategies or mitigations to better address the needs of regional goods movement within the Smart Growth context.

What does local land use policy accomplish in this market context?

Local land use policies regulate the range of uses and intensity of development for private sector use of land and buildings. The policy choices made at the local level reflect the attitudes and desires of the community. Local policies on their own do not create land use or land use change, however. Among other things, such as site characteristics and property owner motivations, land use development depends on local market demand reflecting regional and local economic, demographic, and real estate factors.

In the real estate market, goods movement industries are relatively low value uses from two key perspectives. From the market perspective of the property owner/landlord, goods movement and associated industries generate relatively stable but low rents translating to low land values. From the public sector perspective of local government, goods movement and associated uses represent a low tax base, generating low local government revenues relative to other uses.

In the land use context, goods movement activities and industrial uses require the most segregation from residential, commercial, and office uses. This is because of the noise, truck usage, emissions, and other offsite impacts often associated with goods movement and heavy industry.



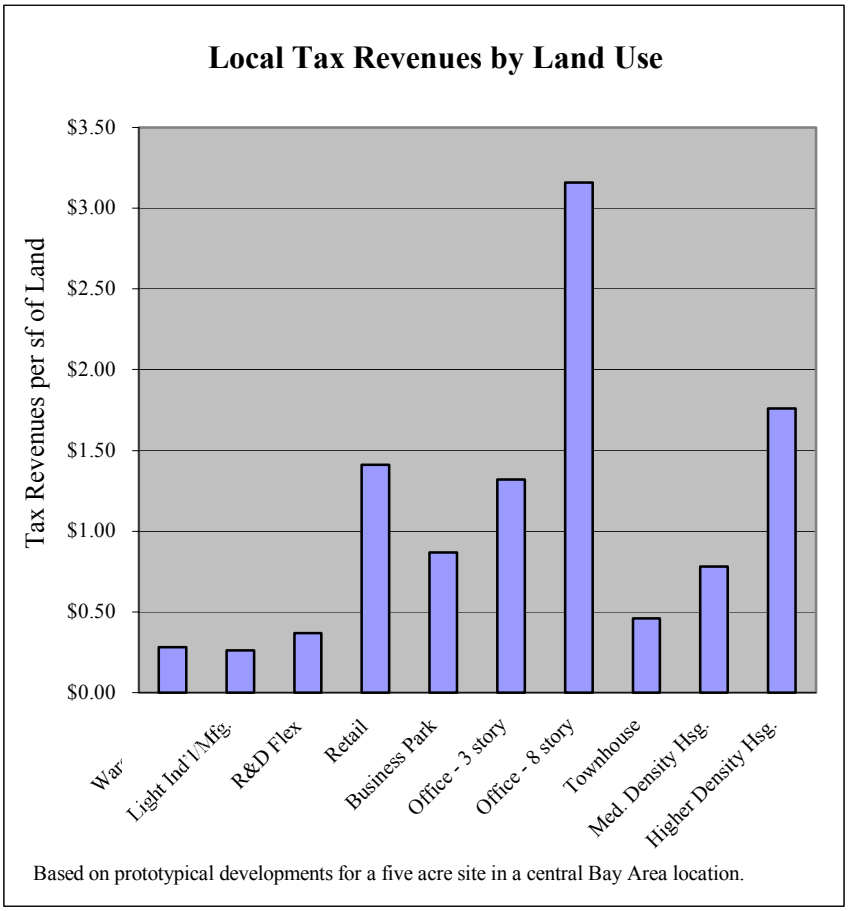
Generally, land use policies identifying industrial, manufacturing, or heavy commercial districts also define locations that are suitable for goods movement activities. Those districts in which goods movement uses are allowed are typically broadly defined and flexible as to permitted uses and densities of development. The policies typically allow for new development and building upgrades to higher value uses as the market context changes. Over time, local land use designations are often changed to reflect the land use transition taking place. Such changes are typically in support of higher-value development, further reducing options for goods movement activities.

In many jurisdictions, there also are companion standards and controls to directly regulate industrial and goods movement business operations to minimize off-site impacts. Regulations can include impact-oriented standards and controls for noise, light/glare, truck usage, emissions, and other factors. The effect of such standards and controls is to increase costs and further limit location options for businesses that generate these types of impacts, particularly in developed areas where land use conflicts are the most likely.

Economic incentives and community benefits favor higher value uses over industrial uses and goods movement industries.

When there is demand for higher-value uses, property owners gain financially from redevelopment to higher density office, business park, retail, and residential uses. In addition, opportunities to increase the local tax base encourage local governments to support development of higher value uses that generate more local revenue. Land use transition to higher value uses can have a positive effect on nearby properties more generally by reducing the off-site impacts of

goods movement and related industrial activities: heavy truck traffic, high road repair and maintenance requirements, noise, hazards, poor air quality, and unappealing visual character. Moreover, broader community benefits of redevelopment to higher value uses can also include increased availability of goods and services locally and higher sales tax revenues (with new retail uses), additional employment opportunities locally (with higher-density office, business park, and R&D uses), or additional housing opportunities (with residential uses). New development, particularly in an older urban area, improves the community's image and helps to attract additional investment and development.



On the other hand, there are a number of potential offsets to the economic incentives and community benefits favoring more intensive commercial, business park/R&D, and residential development over industrial and goods movement activities. Compared to industrial and goods movement activities, higher density, higher value uses generate more automobile traffic on local streets and demand a higher level of local public services with associated higher costs. In some communities the loss of good-paying blue-collar jobs that match the employment needs of the local labor force and the loss of industrial activities that support other businesses and transportation facilities in the community are important issues.

For most communities, the local benefits typically outweigh the costs, and local land use policies and decision-making favor new uses, particularly retail, office, and business park/R&D uses. Local support often exists for new residential development as well, because of the shortage of housing in the region and escalating housing values.

Is there a rationale for local policies to preserve location options for goods movement and associated industries in the central parts of the region?

Considering regional development trends and forecasts, many central bayside locations for goods movement activities will experience land use transition and development pressures that increase the costs for space and introduce a mix of uses that may not be compatible with on-going goods

movement and associated industrial, warehouse, and distribution activities. This type of transition is generally allowed under most existing industrial land use policies and related zoning controls and is encouraged by local communities in the interests of increasing property values, improving the local tax base, and enhancing community image.

Growth and expansion in more outlying locations as well as some relocation of existing uses are the likely options for goods movement industries, although there are trade-offs involved (e.g., increased travel times, higher fuel costs, increased miles traveled, and increased emissions). Another approach would be to use local land use policy and other incentives and investments to identify districts where industrial uses can function well and to adopt specifically tailored zoning and other policies intended to protect their long-term viability there. Such an approach would focus on only a fairly select list of types of uses and would establish zoning and other controls to minimize incentives encouraging higher value, higher density development. Industrial protection strategies are relatively new to the Bay Area, although there are models from other regions around the country.

The benefits of retaining industrial and goods movement activities accrue to the industrial businesses in the protected areas, to certain elements of the labor force, and to businesses and consumers in the larger regional economy. Many of these benefits are diffuse and regional in scope. For example, retaining industrial areas in the central parts of the region near business and population centers and the airports and seaports has benefit for shippers and receivers, and businesses and consumers more broadly. Benefits include faster and less costly goods distribution, fewer truck-miles traveled, and fewer emissions that reduce air quality. Because of the limited scope of local benefits and the broader regional nature of other benefits, it is difficult to build substantial local constituencies to advocate for preservation of industrial areas and land uses. By contrast, the immediacy of the benefits of new development/reuse for property owners and developers, local governments, and community residents provide much stronger incentives for action and advocacy in local land use decision-making.

There are exceptions where local benefits are more apparent. Communities that have substantial investments in airport or seaport facilities are likely to also have a constituency for encouraging policies favorable to goods movement industries. In these or other communities where a segment of the local labor pool or a key business sector depends on goods movement or related industrial uses, there are likely to be more advocates for policies to preserve closer-in locations for these uses.

A successful industrial protection strategy for regional goods movement may require an approach that considers both regional and local benefits and costs. One approach would be to take a regional benefit perspective, identifying the best locations for goods movement businesses and services from a regional perspective and then offering incentives to encourage local communities to make these locations possible.

How else does local policy influence goods movement?

Local ordinances regulating truck parking, truck routes, and truck deliveries affect goods movement industry operations in the Bay Area. These are regulations designed to address nuisances and adverse impacts on local communities generally. As the region grows, freight volumes and deliveries will increase and the level of community concern regarding negative impacts of truck parking, truck traffic, and deliveries will also increase.

Although the goods movement industry has concerns about the impacts of local truck regulations on their operations, the regulations are unlikely to lessen in the future. However, improvements to the regulations to facilitate more efficient goods movement are needed, while still addressing local impacts. Such improvements should focus on the standardization and coordination of local policies and regulations across communities at an areawide and regional level. They also should include development of common use truck parking facilities in the central parts of the region, to reduce the needs for truck parking on city streets and private property. This initial analysis has identified a number of issues and associated policy options that are summarized below.

First, local truck routes in the region are discontinuous and not well-marked. Weight restrictions and other regulations vary throughout the system. Policy options include implementing regionally coordinated mapping to improve selection of truck routes; standardizing signage and conducting periodic field checks to keep signage visible and current; and improving the dissemination route information to truckers.

Second, a shortage of truck parking facilities in the region results in trucks parked on neighborhood streets, in vacant lots, and in shopping center lots and other parking areas. Unregulated truck parking degrades the quality of neighborhoods, introducing unwanted noise, traffic, and security concerns. Local parking restrictions, however, further exacerbate parking needs. Without changes, truck parking problems will get worse over time. Common use, centrally located, truck parking facilities would offer an alternative to community parking. Local ordinances could also establish areas for regulated truck parking by permit. Regional coordination would be required to develop signage for parking restrictions that is standardized and consistent across jurisdictions.

Third, from the truckers and retailers perspective, truck deliveries work best at night when traffic is light and restocking can be done efficiently. In nearby residential areas, however, the noise associated with late night or early morning truck deliveries disturbs residents. Local regulations and noise ordinances often require daytime or early evening deliveries. Local regulations can do more to specify loading dock locations and design criteria to mitigate noise impacts. Regionally, consistent regulation of delivery hours across jurisdictions could clarify expectations of truckers, businesses, and nearby residents.

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INTRODUCTION

Regional growth and changing development patterns are having implications for goods movement and goods movement industries in the San Francisco Bay Area. Over time, the locations available for transportation, warehouse, and distribution uses have been changing and becoming more limited in parts of the region, and the costs of industrial land and leasable space have been increasing.

This report addresses the locational and land use factors and trends of relevance to companies and industries involved in goods movement. First, it provides an overview of existing conditions and trends regarding the regional economy and real estate markets, as affecting location options available to goods movement industries and changes in regional industrial location patterns. Then, the analysis focuses on the role of land use policy and community attitudes and impacts on the locations and operations of goods movement industries. In each case, the analysis focuses on industrial land uses, on locations along the region's major transportation corridors, on the reasons and key factors behind changes and trends, and on anticipated future trends with implications for the goods movement industry. The results of the analysis are used to identify potential real estate and land use issues for possible further consideration in Phase II efforts that will focus on strategy and policy development.

INDUSTRIAL REAL ESTATE MARKET: LOCATIONS AND RENTS

The industrial real estate market provides location options for the transportation, distribution, and warehouse companies and facilities involved in goods movement. It also provides locations for manufacturing industries that depend on goods movement, including high technology and more traditional manufacturing industries.

The data describing the industrial real estate market, as summarized below, are from real estate industry publications and reports. Most are from the Research Division of BT Commercial Real Estate. They report on the real estate markets with substantial amounts of industrial space, and focus on the central parts of the Bay Area region. The data are useful in identifying industrial location patterns and provide a good indication of recent market conditions and trends and of the relative differences among types of industrial space and among locations throughout the region.

As available, additional data and information are included for more outlying locations, not covered by the available research reports.

Current Industrial Real Estate Location Patterns

Warehouse Market

Warehouse space (typically for bulk warehousing purposes with minimal build-out and clear heights of 18 feet or more) is the type of industrial space occupied by most transportation, distribution, and warehouse businesses involved in goods movement.[1] Construction businesses also can occupy space in the warehouse category. Within the nine-county Bay Area region, the locations with substantial amounts of warehouse space are focused along the I-880 and Hwy. 101 corridors that ring the central and southern parts of San Francisco Bay, as summarized in Tables 1 and 2. These corridors serve the largest business and population centers in the region, as well as the region's airports and seaport. Bay Area freight flows are concentrated along these corridors.

The largest amounts of warehouse space in the region are located in the inner East Bay, along the I-80/880 corridor, extending from Richmond on the north to Fremont on the south. There are over 81 million square feet of warehouse space along this corridor, representing about 45 percent of the warehouse space in major Bay Area markets. Within this corridor, the largest amounts of warehouse space are located in the central areas, in the cities of Hayward, San Leandro, and Oakland which, together, include 52 million square feet of warehouse space. Locations in these three cities have proximity to the growing East Bay areas along the corridor, access to the Port of Oakland and Oakland International Airport, and are located on the major routes linking the East Bay to the South Bay and linking the region to the Central Valley (via I-580).

There also are large amounts of warehouse space in Santa Clara County (35 million square feet) and San Mateo County (34 million square feet). In Santa Clara County, the warehouse space is focused in locations in north and south/central San José (about 18 million square feet) and at the southern end of the I-880 corridor in Milpitas. In San Mateo County, the supply of warehouse space occurs along Hwy. 101, and is heavily concentrated at the northern end of the county, in South San Francisco and San Bruno, which include about 19 million square feet of industrial space. Businesses located in the South San Francisco area can serve both the San Francisco and San Mateo County markets, and have proximity to San Francisco International Airport. There also are about 21 million square feet of warehouse space remaining in San Francisco, in the southern parts of the city, with access to Hwys. 101 and 280.

[1] Warehouse space includes buildings typically used for bulk warehouse purposes, with clear heights of 18 feet or more, dock and/or grade doors, minimal build-out, and limited glass.

TABLE 1
MAJOR BAY AREA MARKETS FOR INDUSTRIAL SPACE
(First Quarter 2003)

Area	Warehouse Space /a/ (mil. sq. ft.)		Manufacturing Space /b/ (mil. sq. ft.)		R&D Space /c/ (mil. sq. ft.)	
San Francisco	20.8	11%	-	-	-	-
San Mateo County	33.9	19%	6.9	4%	16.3	9%
Santa Clara County	34.9	19%	52.3	33%	129.5	69%
East Bay I-80/880 Corridor	81.6	45%	94.1	60%	33.8	18%
East Bay Tri-Valley	11.7	6%	4.7	3%	6.9	4%
TOTAL, Major Markets	182.9 mil.	100%	158.0 mil.	100%	186.5 mil.	100%

NOTE: The data presented above identify industrial space in parts of the Bay Area with substantial amounts of space of each type, as available from real estate company research reports. The data do not include all of the industrial space of each type that exists throughout the region, but only that covered by available reports and consistent sources. The data focus on the central parts of the region with the largest amounts of industrial space. See Tables 2, 3, and 4 for detail on the locations of each type of space within each market area.

/a/ The warehouse market includes buildings typically used for bulk warehouse purposes, with clear heights of 18 feet or more, dock and/or loading grade doors, minimal build-out, and limited glass.

/b/ Manufacturing space includes space in buildings typically used for manufacturing purposes, with the ability to accommodate production machinery and equipment, with clear heights of less than 18 feet, with at least three sides concrete and one side glass, and usually with up to 15 percent office build-out.

/c/ R&D space includes buildings typically used for R&D or light manufacturing functions, no more than two stories in height, with higher parking ratios, with glass on up to three sides, and typically improved to allow office, manufacturing, R&D, and/or assembly functions.

Source: BT Commercial Real Estate; CB Richard Ellis; Hausrath Economics Group.

The major warehouse markets include both older facilities developed many years ago, and newer, more modern product types. The quality of older warehouse facilities in the center city areas, in particular, can be poor and not up to modern warehouse/distribution standards in many cases.

Warehouse space is located in more outlying parts of the region as well, along major transportation routes and in developing areas. Of note is the expansion of warehouse space in the Livermore/Tri-Valley area, along I-580 connecting the Bay Area with the Central Valley (including about 15 million square feet of warehouse space), and the expansion of warehouse space in the Napa/Solano area, serving the wine industry in Napa County and along the I-80 corridor in Solano County, connecting the Bay Area with the Sacramento region. There also is warehouse space in the Benicia area of Solano County and along the loop connecting I-780, I-680, and I-80.

TABLE 2
MAJOR BAY AREA MARKETS FOR WAREHOUSE SPACE /a/
(First Quarter 2003)

Area	Total Building Space (Sq. Ft.) /b/	Percent of Total Space	Avg. Asking Rent /c/	Vacancy Rate
Mission/SOMA	5,650,538		$0.75	1.4%
3rd St. Corridor/Potrero Hill	10,534,099		$0.72	5.1%
Bayview	4,590,940		$0.69	10.9%
Total San Francisco	**20,775,577**	**11%**	**$0.71**	**6.6%**
Brisbane	4,336,936		$0.75	13.1%
South San Francisco/San Bruno	18,780,077		$0.67	10.5%
Burlingame/Millbrae	3,775,140		$0.74	15.4%
San Mateo/Foster City	720,612		$1.62	16.9%
Belmont/San Carlos	3,398,118		$0.97	4.9%
Redwood City	1,033,304		$0.91	11.7%
Menlo Park	1,861,136		$0.52	5.8%
Total San Mateo County	**33,905,323**	**19%**	**$0.74**	**10.7%**
Sunnyvale	3,275,858		$0.53	7.5%
Santa Clara	3,912,332		$0.54	6.2%
North San José	9,933,635		$0.50	12.3%
South/Central San José	8,876,284		$0.47	12.8%
Morgan Hill/Gilroy	2,319,580		$0.28	10.7%
Milpitas	6,606,273		$0.47	20.9%
Total Santa Clara County	**34,923,962**	**19%**	**$0.48**	**12.8%**
Richmond	4,746,259		$0.39	10.0%
Berkeley	2,085,950		$0.55	1.2%
Emeryville	2,111,411		$0.54	5.7%
Oakland	15,646,379		$0.36	7.3%
San Leandro	16,193,677		$0.31	8.7%
Hayward	20,159,811		$0.33	10.7%
Union City	8,333,335		$0.33	10.0%
Newark	3,714,043		$0.40	7.7%
Fremont	8,598,612		$0.49	19.9%
Total East Bay I-80/880 Corridor	**81,589,477**	**45%**	**$0.37**	**10.0%**
Livermore	6,459,694		$0.40	18.3%
Pleasanton	2,614,017		$0.65	6.4%
Dublin/San Ramon	2,627,059		$0.62	3.2%
Total East Bay Tri-Valley	**11,700,770**	**6%**	**$0.44**	**12.2%**
Grand Total	**182,895,109**	**100%**	**$0.50**	**10.6%**

NOTE: The data for all market areas except Pleasanton and Dublin/San Ramon in the Tri-Valley area are from *Research Reports* prepared by BT Commercial Real Estate, for First Quarter 2003. Data for the two Tri-Valley areas are from CB Richard Ellis *Industrial Market Reports* for First Quarter 2003.

/a/ The warehouse market includes buildings typically used for bulk warehouse purposes with clear heights of 18 feet or more, dock and/or loading grade doors, minimal build-out, and limited glass.

/b/ Total building space includes space in warehouse buildings over 10,000 square feet in size.

/c/ Rents (NNN) are expressed per square foot of space per month. Average asking rents are for space available for lease in First Quarter 2003.

Sources: BT Commercial Real Estate; CB Richard Ellis; Hausrath Economics Group.

Beyond the nine-county Bay Area region, there is a large, growing supply of warehouse space in San Joaquin County to the east. Locations in this part of the San Joaquin Valley link the Bay Area with the growing Central Valley and with northern and southern California via I-580, I-5, and Highway 99. Currently, there are over 84 million square feet of warehouse space in San Joaquin County, focused in Tracy, the Stockton and Lodi areas, and in the Lathrop and Manteca area.[2] Much of the recent growth of warehouse space in San Joaquin County has been development to meet the growing demand of transportation, distribution, and warehouse activity serving the Bay Area region, as will be further described in a later section of this report.

Manufacturing and R&D Markets

The industrial real estate market also provides locations for manufacturing industries that depend on goods movement to transport their products or to provide key inputs for production. The more traditional, manufacturing industries (*i.e.*, auto industry, foods products industry, paper and publishing, chemicals, furniture, metal and fabricating industries, etc.) typically occupy manufacturing space, while light manufacturing and high technology manufacturing and assembly can occupy manufacturing space or a newer building type, referred to as R&D space.[3] Some of the space in these markets also can provide locations for transportation and distribution businesses.

Manufacturing Market

Within the Bay Area region, a large share of manufacturing space is located along the East Bay I-80/880 corridor, accounting for about 94 million square feet and about 60 percent of the total of 158 million square feet of manufacturing space in major Bay Area markets, as shown in Tables 1 and 3. The cities of Oakland, Hayward, and San Leandro have the highest concentration of manufacturing building space with nearly 60 million square feet between them, 37 percent of the Bay Area total for major markets. These market areas include a mix of older and newer manufacturing facilities. The Silicon Valley cities of San José and Santa Clara also accommodate a large portion of manufacturing space with about 34 million square feet together. In total, Santa Clara County accounts for 52 million square feet of manufacturing space, about 34 percent of the total for major markets.

Other manufacturing space exists throughout the region, but not in the amounts and concentrations seen in the East Bay I-80/880 and South Bay areas. There is manufacturing activity/space in San Mateo County and in the Tri-Valley area (see Table 3). There also is

[2] CB Richard Ellis, Inc., September 2003, as available from the San Joaquin Partnership.

[3] Manufacturing space includes space in buildings typically used for manufacturing purposes, with the ability to accommodate production machinery and equipment, with clear heights of less than 18 feet, with at least three sides concrete and one side glass, and usually with up to 15 percent office build-out. R&D space includes buildings typically used for R&D or light manufacturing functions, no more than two stories in height, with higher parking ratios, with glass on up to three sides, and typically improved to allow office, manufacturing, R&D, and/or assembly functions.

TABLE 3
MAJOR BAY AREA MARKETS FOR MANUFACTURING SPACE /a/
(First Quarter 2003)

Area	Total Building Space (Sq. Ft.) /b/	Percent of Total Space	Avg. Asking Rent /c/	Vacancy Rate
Belmont/San Carlos	3,193,736		$0.91	12.1%
Redwood City	2,244,602		$0.86	5.4%
Menlo Park	1,470,024		$0.90	12.8%
Total San Mateo County	**6,908,362**	**4%**	**$0.90**	**10.1%**
Palo Alto	968,710		$1.03	9.8%
Mountain View	2,775,946		$0.90	9.4%
Campbell	1,327,562		$0.63	3.3%
Sunnyvale	6,350,819		$0.83	9.1%
Santa Clara	12,275,360		$0.73	8.2%
North San José	9,404,879		$0.63	11.4%
South/Central San José	12,646,103		$0.72	6.0%
Morgan Hill/Gilroy	3,860,943		$0.66	11.8%
Milpitas	2,658,520		$0.69	12.8%
Total Santa Clara County	**52,268,842**	**33%**	**$0.72**	**8.8%**
Richmond	6,992,301		$0.39	12.5%
Berkeley	5,478,956		$0.65	2.3%
Emeryville	2,268,110		$0.66	2.4%
Oakland	25,809,022		$0.45	3.9%
San Leandro	14,875,806		$0.44	2.4%
Hayward	18,922,560		$0.43	6.9%
Union City	6,371,588		$0.48	5.6%
Newark	4,160,393		$0.67	10.6%
Fremont	9,187,135		$0.62	11.5%
Total East Bay I-80/880 Corridor	**94,065,871**	**60%**	**$0.49**	**5.9%**
Livermore	4,274,090		$0.67	15.1%
Other	460,328		$0.91	1.0%
Total East Bay Tri-Valley	**4,734,418**	**3%**	**$0.68**	**14.0%**
Grand Total	**157,977,493**	**100%**	**$0.62**	**7.3%**

NOTE: The data for all market areas except Pleasanton and Dublin/San Ramon in the Tri-Valley area are from *Research Reports* prepared by BT Commercial Real Estate, for First Quarter 2003. Data for the two Tri-Valley areas are from CB Richard Ellis *Industrial Market Reports* for First Quarter 2003.

/a/ The manufacturing market includes buildings typically used for manufacturing purposes, with ability to accommodate production machinery and equipment, with clear heights of less than 18 feet, with at least three sides concrete and one glass, usually with up to 15 percent office build-out.

/b/ Total building space includes space in manufacturing buildings over 10,000 square feet in size.

/c/ Rents (NNN) are expressed per square foot of space per month. Average asking rents are for space available for lease in First Quarter 2003.

Sources: BT Commercial Real Estate; CB Richard Ellis; Hausrath Economics Group.

manufacturing space in Solano County, along the I-80 corridor (Vacaville and Fairfield), and in Sonoma and Napa counties (wine industry and manufacturing in the Santa Rosa area).

R&D Market

Overall, the major R&D markets in the Bay Area include 186 million square feet of R&D space, as summarized in Tables 1 and 4. The R&D market is heavily concentrated in Santa Clara County, with 129 million square feet of R&D space, representing nearly 70 percent of the total for major Bay Area markets. The cities of San José, Sunnyvale, and Santa Clara have the largest amounts of R&D space, with 87 million square feet between them. Mountain View and Milpitas also have notable amounts of R&D space. The East Bay I-80/880 corridor accounts for the next largest amounts of R&D space with about 34 million square feet. Much of that space is located at the southern end of the corridor in Fremont (about 22 million square feet), adjacent to Santa Clara County and a part of the greater Silicon Valley. There also is a notable amount of R&D space in San Mateo County, concentrated at the northern and southern ends. Comparatively, R&D space is a relatively new product type, explaining its concentration in areas of relatively recent development. It is attractive to cleaner, light industrial activities, such as those involved in high technology manufacturing, that often involve assembly, research and development, and office/administrative activities along with manufacturing functions. (Some R&D space is occupied by other business functions beyond the industrial business activities associated with goods movement, that are the subject of this report.)

Cost of Industrial Space

The cost of industrial space varies among the warehouse, manufacturing, and R&D markets, and it varies among locations within the region. Real estate data on rents for industrial space provide useful measures of space cost. The data in Table 5 identify average asking rents for industrial space of various types and in various locations, as of early 2003.

Rents for Different Types of Space

Warehouse space, as required for transportation, distribution, and warehouse businesses in the goods movement industry, currently command rents that average $0.30 to $0.75 per square foot of space per month, depending on location/market area. Overall, average rent for major Bay Area warehouse markets[4] is about $0.50 per square foot per month, as of early 2003. Vacancy rates for warehouse markets are in the range of six to 12 percent (early 2003), reflecting the current slowdown in the regional economy.

[4] Overall average rents for major Bay Area markets provide an overall average for San Francisco, San Mateo County, Santa Clara County, and East Bay I-80/880 corridor markets.

TABLE 4
MAJOR BAY AREA MARKETS FOR R&D SPACE /a/
(First Quarter 2003)

Area	Total Building Space (Sq. Ft.) /b/	Percent of Total Space	Avg. Asking Rent /c/	Vacancy Rate
Brisbane	206,873		$2.75	29.7%
South San Francisco/Burlingame	6,084,224		$2.56	9.0%
Foster City/RWS	1,926,883		$1.61	33.5%
Belmont/San Carlos	1,040,417		$2.14	24.2%
Redwood City	2,176,956		$1.32	40.2%
Menlo Park	4,909,021		$1.25	15.9%
Total San Mateo County	**16,344,374**	**9%**	**$1.67**	**19.3%**
Palo Alto	6,028,689		$1.80	21.5%
Mountain View	13,585,153		$1.31	20.9%
Cupertino	4,892,121		$1.32	12.1%
Westside	1,883,216		$1.27	24.7%
Sunnyvale	22,611,582		$1.13	20.0%
Santa Clara	22,517,068		$1.32	28.7%
San José	41,794,694		$1.05	20.8%
Milpitas	13,776,019		$1.19	20.6%
Morgan Hill/Gilroy	2,391,255		$0.63	21.5%
Total Santa Clara County	**129,479,797**	**69%**	**$1.20**	**21.8%**
Berkeley	297,031		$1.27	5.4%
Emeryville	1,720,079		$0.75	3.1%
San Leandro	952,929		$0.90	4.0%
Hayward	5,421,818		$0.80	18.5%
Union City	933,446		$0.97	5.6%
Newark	2,537,583		$0.92	31.2%
Fremont	21,934,988		$1.04	25.5%
Total East Bay I-80/880 Corridor	**33,797,874**	**18%**	**$0.99**	**22.4%**
Livermore	2,488,381		$1.08	22.7%
Pleasanton	3,295,501		$1.60	7.4%
Dublin/San Ramon	1,103,944		$1.30	1.3%
Total East Bay Tri-Valley	**6,887,826**	**4%**	**$1.24**	**11.9%**
Grand Total	**186,509,871**	**100%**	**$1.20**	**21.7%**

NOTE: The data for all market areas except Pleasanton and Dublin/San Ramon in the Tri-Valley area are from *Research Reports* prepared by BT Commercial Real Estate, for First Quarter 2003. Data for the two Tri-Valley areas are from CB Richard Ellis *Industrial Market Reports* for First Quarter 2003.

/a/ The R&D market includes buildings typically used for R&D or light manufacturing functions, no more than two stories in height, with higher parking ratios (3/1000 or greater), with glass on more than one side, and typically improved to allow office, manufacturing, assembly, and/or R&D functions.

/b/ Total square footage of R&D buildings.

/c/ Rents (NNN) are expressed per square foot of space per month. Average asking rents are for space available for lease in First Quarter 2003.

Sources: BT Commercial Real Estate; CB Richard Ellis; Hausrath Economics Group.

TABLE 5
RENTS AND VACANCY RATES FOR INDUSTRIAL MARKETS IN THE BAY AREA AND SAN JOAQUIN COUNTY
(First Quarter 2003)

	Market Areas						
	San Francisco /a/	San Mateo County /a/	Santa Clara County /a/	East Bay I-80/880 Corridor /a/	Tri-Valley /a,b/	Napa/Solano Cos. /c/	San Joaquin County /d/
WAREHOUSE MARKETS							
Avg. Asking Rent (NNN) ($ per sq. ft. per mo.)	$0.71	$0.74	$0.48	$0.37	$0.41	$0.35	$0.30
Asking Rent Range	$0.46-1.00	$0.39-1.95	$0.25-0.85	$0.11-1.15	N.A.	$0.25-0.50	$0.18-0.45
Vacancy Rate	6.6%	10.7%	12.8%	10.0%	11.2%	9.4%	N.A.
MANUFACTURING MARKETS							
Avg. Asking Rent (NNN) ($ per sq. ft. per mo.)	-	$0.90	$0.72	$0.49	$0.64	$0.54	-
Asking Rent Range	-	N.A.	$0.29-1.95	$0.20-1.10	N.A.	$0.50-0.80	-
Vacancy Rate	-	10.1%	8.8%	5.9%	15.8%	2.5%	-
R&D MARKETS							
Avg. Asking Rent (NNN) ($ per sq. ft. per mo.)	-	$1.67	$1.20	$0.99	$1.34	$0.67	-
Asking Rent Range	-	$0.65-3.56	$0.39-3.50	$0.37-2.60	N.A.	N.A.	-
Vacancy Rate	-	19.3%	21.8%	22.4%	14.0%	11.3%	-

N.A. = not available

/a/ BT Commercial Real Estate, Reports for First Quarter 2003.
/b/ BT Commercial Real Estate and CB Richard Ellis.
/c/ Cushman & Wakefield.
/d/ CB Richard Ellis; City of Tracy; Colliers International; City of Manteca; PMZ; Cushman & Wakefield.

Source: Hausrath Economics Group based on real estate market data from sources noted above.

Rents for manufacturing and R&D space are higher than warehouse rents. Manufacturing space commands rents that average $0.50 to $0.90 per square foot per month, with $0.62 per square foot representing the overall average for major Bay Area manufacturing markets[4] in early 2003. R&D space rents are higher, with averages of $1.00 to $1.67 per square foot per month, with $1.20 per square foot representing the overall average for major R&D markets[4] in early 2003. Vacancy rates for manufacturing markets are currently in the range of six to 16 percent. Vacancy rates for R&D space are higher, in the range of 11 to 22 percent, largely due to the current economic downturn in the high technology sectors and the recent addition of a substantial amount of new R&D space.

The differences in rents among industrial markets reflect differences in the degree and types of facility improvements, differences in the intensity of use of the space, and differences in the rent-paying ability of users. Typically, warehouse buildings have minimal build-out, manufacturing buildings have somewhat more improvements, and R&D products have more improvements and finishes, appropriate to the functions performed in each. Typically, the activities in warehouse space require large amounts of space and have relatively high space requirements per dollar value of goods/services involved. By comparison, R&D space can involve small, high-value goods manufacturing, assembly and/or R&D activities, resulting in higher dollar values of production per square foot of space.

Rents in Different Market Areas

There are significant variations in rents among market area locations. The bar charts in Figures 1, 2, and 3 summarize the variations in average asking rents among county/corridor areas, for warehouse, manufacturing, and R&D space. The charts show that the differences in rents among locations are relatively consistent for each of the industrial space markets, as described below.

Among major Bay Area market areas, warehouse, manufacturing, and R&D rents are the highest in San Mateo County and San Francisco. Warehouse rents currently average $0.71 (San Francisco) and $0.74 (San Mateo County) per square foot per month in these areas, while manufacturing rents average $0.90 (San Mateo County) and R&D rents average $1.67 (San Mateo County). Industrial rents in Santa Clara County come next, averaging $0.48 for warehouse space, $0.72 for manufacturing space, and $1.20 for R&D space. Santa Clara County rents fall below those in San Francisco and San Mateo counties and above those elsewhere in the region. Industrial rents generally are lower for space/locations in the East Bay along the I-80/880 corridor. Warehouse market rents in this corridor currently average $0.37 per square foot per month, manufacturing market rents average $0.49 per square foot, and R&D rents average $0.99 per square foot.

Outside the major urbanized market areas, industrial rents generally are lower for comparable types of space. Warehouse and manufacturing rents in the Tri-Valley area fall between those in Santa Clara County and in the East Bay I-80/880 corridor. Warehouse rents in the Tri-Valley area average $0.41 per square foot per month, and manufacturing rents average $0.64 per square

Figure 1
Warehouse Space Rents - 1st Qtr 2003

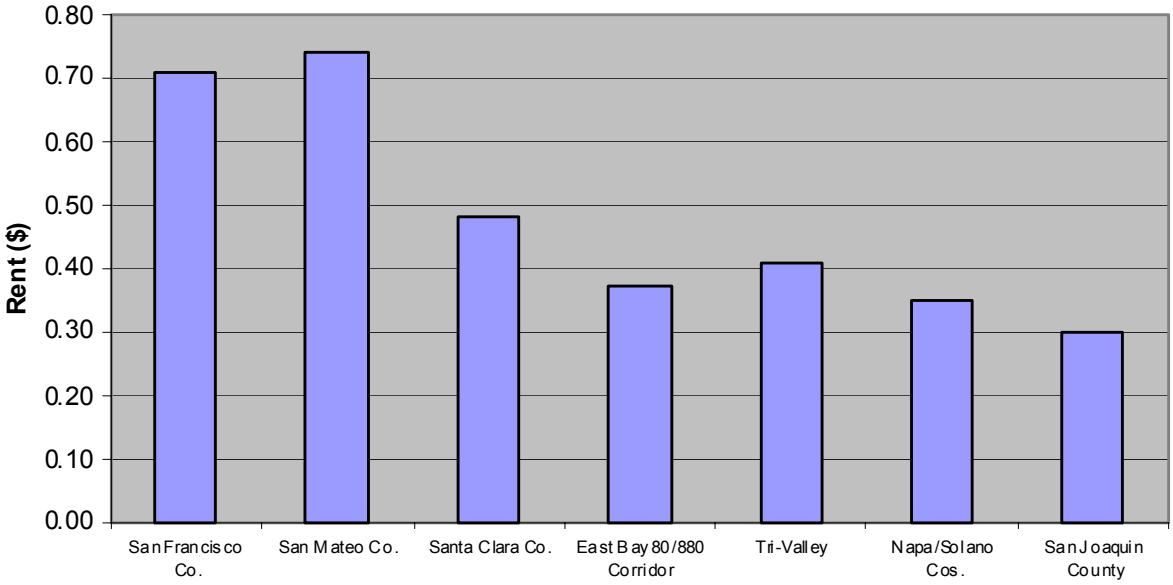
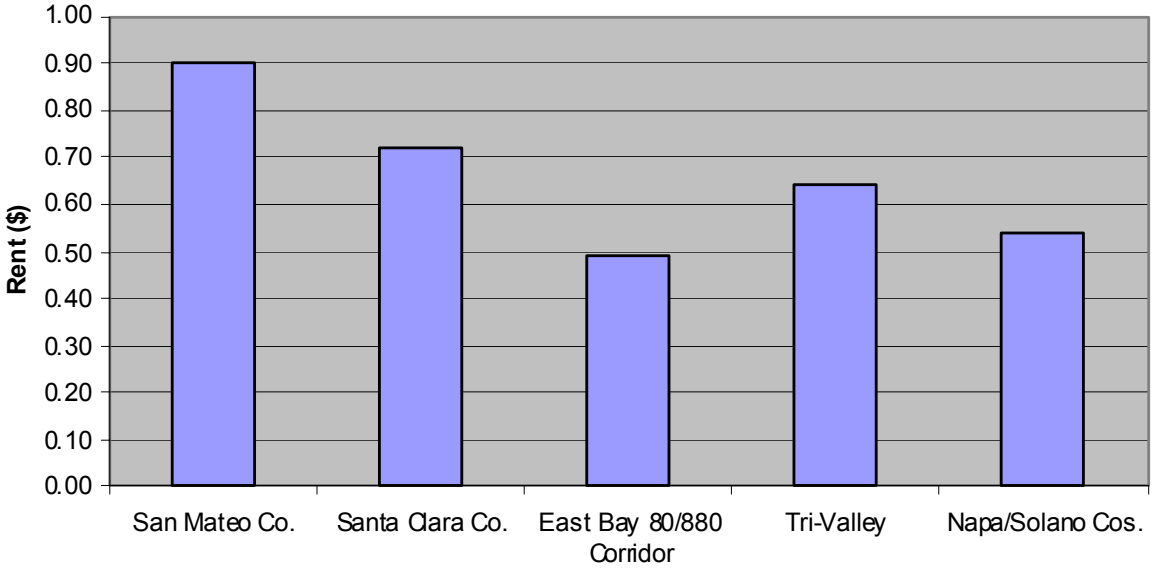
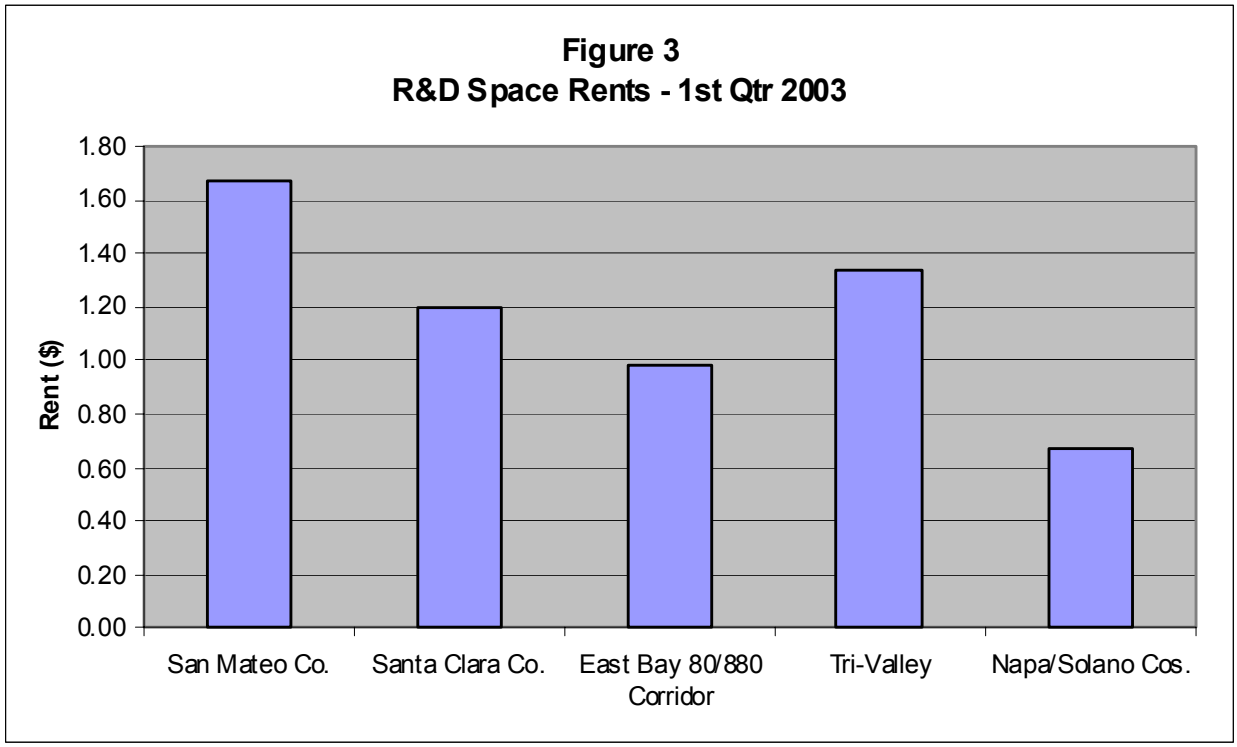


Figure 2
Manufacturing Space Rents - 1st Qtr 2003





foot. R&D rents in Tri-Valley are currently higher than those in Santa Clara County, averaging $1.34 per square foot. Rents in the Napa/Solano County area are typically below or similar to those in the East Bay I-80/880, averaging $0.35 per square foot per month for warehouse space, $0.54 per square foot for manufacturing space, and $0.67 per square foot for R&D space. Further to the east, industrial space rents are the lowest in San Joaquin County industrial areas. The large supply of warehouse space in this area has average rents of $0.30 per square foot per month.

The reasons behind the regional variations in industrial rents provide insight into the market factors affecting industrial uses and the rent pressures and trends under way as the region continues to grow.

Factors Behind Rent Differentials

Several factors explain the higher rents for industrial space in San Mateo County and San Francisco. Demand for land is strong in these areas, both from industrial uses serving businesses and population in San Francisco and on the Peninsula and from higher-value high technology campus, commercial, and residential uses seeking locations for development and expansion. Over time, the amount of land in industrial use has declined in these areas and transitioned to new uses, as higher-value uses bid more for the industrial sites, particularly in San Francisco. The industrial areas that remain, such as in South San Francisco and San Bruno, are developed

and used intensively and are occupied by businesses that pay higher rents to remain in the area, because of proximity to markets, suppliers, and/or transportation facilities (including San Francisco International Airport). It is likely that they also pass along at least some of the higher space costs in the form of higher prices for the services they provide and the products they produce. Industrial businesses unwilling or unable to pay the higher rents to remain in these areas, have moved to other areas, such as locations in the East Bay or in more outlying areas.

Rents for industrial space in Santa Clara County are below those in San Francisco and on the Peninsula, but above those elsewhere in the region. Proximity to the large and growing Silicon Valley markets, as well as demand for land for development of higher-value uses contribute to higher industrial rents. An overall lower-density pattern of development in the County and a relatively large area and land supply contribute to keeping space costs below the highest levels in San Mateo and San Francisco counties.

Industrial space in the East Bay I-80/880 corridor is relatively lower cost because of the large, remaining industrial space/land supply and, historically, lower demand for land from higher-value uses, particularly for sites in many of the older industrial areas (although this is changing, as discussed later in this report). The industrial space in the East Bay also includes a mix of types of facilities, including many older facilities that no longer meet modern standards. Demand is strong for industrial locations along the I-80/880 corridor because of proximity to large East Bay markets and major transportation facilities (Oakland International Airport and seaport) and because of the corridor's central location in the region, linking the East Bay, South Bay, and West Bay areas. There is significant variation in industrial rents among cities in the East Bay corridor, with higher-than-average rents for industrial space in Berkeley and Emeryville where many former industrial locations have been converted to higher-value uses. Industrial rents also are higher at the southern end of the corridor in Fremont and Newark because of demand pressures from Silicon Valley, and because of the newer industrial facilities in those areas. Within the East Bay corridor, rents are relatively lower in the older, East Bay areas with large amounts of industrial space, including San Leandro, Hayward, and Oakland as well as Richmond and Union City.

Industrial rents are lowest for warehouse space in the San Joaquin County areas, due to the large supply of industrial land and facilities in these areas and the longer distances from major Bay Area markets and ports/airports. In addition to the large supply of lower-cost land, it is easier and less costly to develop new facilities on vacant sites subdivided for modern industrial uses, than to redevelop sites in older, existing industrial areas that involve demolition and possible remediation. Increasingly, warehouse, distribution, and transportation uses have been locating in the San Joaquin Valley, because of its lower costs, the availability of space, and its accessibility to major transportation routes linking the Bay Area to the Central Valley and southern California (via I-580, I-5, and Highway 99).

Industrial space in Solano County areas along I-80 and in Benicia is relatively lower cost because of its more outlying location and a relatively large land/space supply in those areas. Similar factors apply for the Tri-Valley areas along I-580 and I-680, although industrial rents are

a bit higher there because of the strength of high technology and commercial markets and the presence of largely new, modern space.

TRENDS IN INDUSTRIAL RENTS AND INDUSTRIAL LOCATION PATTERNS

Trends in industrial rents and the availability of industrial space closely follow trends in the regional economy and the overall pattern of regional growth and development.

Available data describing industrial rents and real estate market trends focus on the past five to eight years, from 1995 to 2003. Given the changes in the regional economy during that period, the trends provide a good example of the real estate market changes that occur as the region grows. The recent industrial real estate market trends are summarized below, followed by discussion of anticipated future trends. First, an overview of the real estate market context is provided, identifying important aspects of the relationship between regional economic growth and the real estate market.

Background on Real Estate Market Context

The economy of the San Francisco Bay Area experienced substantial growth in the latter part of the 1990s and into 2000. While led by the high technology sectors, growth occurred throughout the economy, in the traditional industrial and service sectors as well. Population and housing growth also continued. Regional employment growth is summarized in Table 6. It should be noted that much of the employment growth shown from 1990 to 2000 occurred during the latter four to five years of that decade.

As growth occurred, there have been direct implications for the real estate market. Strong economic and employment growth in the late 1990s through 2000 increased the demand for building space, particularly office and R&D space, as well as commercial/retail and industrial space. The leasing of space increased, vacancies dropped to low levels, and space rents climbed due to the increased competition for available space. Higher rents had two implications. They enhanced the feasibility of new construction and sent developers looking for sites for new projects. High rents and low vacancies also resulted in tenants in higher-cost locations seeking space in nearby areas with greater space availability and with relatively lower (more affordable) rents/space costs.

While the real estate market changes that occurred in the late 1990s into 2000 were led by the demand for office and R&D space, the market for industrial space (manufacturing and warehousing space) also was impacted. As the economy grew, there was growth of business activities using industrial space, including warehouse/distribution, transportation, construction, and traditional manufacturing activities. This growth directly increased the demand for industrial space. In addition, as demand for space by office and R&D business activities increased, there was increased interest in industrial sites/buildings for new development or building conversions for office and R&D uses. Industrial sites/buildings also were sought for

TABLE 6
EMPLOYMENT GROWTH TRENDS
FOR BAY AREA REGION AND SELECTED COUNTIES

	Total Employment	Employment Growth (from prior period)	Avg. Annual Growth Rates
	BAY AREA REGION (9 counties)		
1990	3,206,080		
2000	3,753,670	+547,590	+1.59%
2010	4,225,030	+471,360	+1.19%
2025	4,932,590	+707,560	+1.04%
	SAN FRANCISCO		
1990	579,180		
2000	634,430	+55,250	+0.92%
2010	690,420	+55,990	+0.85%
2025	770,500	+80,080	+0.73%
	SAN MATEO COUNTY		
1990	326,670		
2000	395,890	+69,220	+1.94%
2010	433,820	+37,930	+0.92%
2025	501,990	+68,170	+0.98%
	SANTA CLARA COUNTY		
1990	890,930		
2000	1,092,330	+201,400	+2.06%
2010	1,216,200	+123,870	+1.08%
2025	1,395,830	+179,630	+0.92%
	ALAMEDA/CONTRA COSTA COUNTIES		
1990	958,650		
2000	1,112,790	+154,140	+1.50%
2010	1,276,590	+163,800	+1.38%
2025	1,509,650	+233,060	+1.12%
	NAPA/SOLANO COUNTIES		
1990	172,690		
2000	190,050	+17,360	+0.96%
2010	224,750	+34,700	+1.69%
2025	280,350	+55,600	+1.48%
	SAN JOAQUIN COUNTY (Outside 9-county Bay Area Region)		
1990	168,300		
2000	202,600	+34,300	+1.87%
2020	332,300	+129,700	+2.50%

Source: Hausrath Economics Group, based on ABAG *Projections 2002* for the Bay Area region and counties, and on California EDD and Caltrans projections for San Joaquin County.

live/work, housing, and retail uses, as the demand for housing increased and the expansion of retailing occurred.

It is important to understand that, from a real estate market perspective, industrial land uses generally pay the lowest rents per square foot of building space and have the lowest value per square foot of land, compared to other land uses. This is because industrial uses typically require minimal building improvements, are developed at low densities, and need large land areas and building spaces relative to the value of goods and services and the volume/intensity of business activity involved. By comparison, R&D, retail/commercial, office, and residential uses are higher-value uses, typically developed at higher densities than industrial uses. Where demand exists, these other uses support higher land values than industrial uses. The differentials in value become quite substantial as the density of development increases, such as for multi-story R&D and office uses or higher-density residential development.

Thus, as economic growth occurs and real estate demand pressures build up, as occurred in the late 1990s into 2000, older industrial sites/buildings in central areas become increasingly attractive as locations for new development of higher-value uses or as candidates for the conversion of existing industrial buildings to new uses. Often, older industrial sites in central locations also are desirable for development because they include relatively large land areas under one ownership, and do not require assembly of numerous parcels to create a development site. As older industrial sites are purchased and developed for higher-value uses, the supply of industrial space declines in those areas, thereby increasing the demand for the remaining industrial space/sites. Increased demand, greater competition for available space, and higher industrial rents lead to higher-intensity use of existing industrial facilities/areas and can support development of new industrial facilities, to replace older, outmoded ones. It also results in industrial uses seeking less-costly locations in more outlying parts of the region, or in nearby areas such as in San Joaquin County. All of these types of changes occurred during the past decade and are reflected in the recent industrial market trends, presented and summarized below.

As the Bay Area region grows, it expands outward, and it intensifies within, particularly within its central areas. Both aspects of regional growth are relevant to industrial location patterns in the future. The intensification of activity and development in the central parts of the region has implications for the cost and availability of the large amount of industrial space that currently remains in central locations along the major transportation corridors around San Francisco Bay (as summarized in Tables 1, 2, and 3 earlier in this report). Expansion outward is relevant, as future industrial growth will continue to seek lower-cost alternatives in outlying locations with the appropriate transportation accessibility.

Recent Trends in Industrial Rents and Vacancy Rates

Real estate market data tracking rents and vacancy rates for industrial and R&D space in the major Bay Area market areas, confirm the general pattern and trends described above.

Strong growth of the region's economy in the late 1990s through 2000, resulted in steadily increasing rents for warehouse, manufacturing, and R&D space in all major Bay Area market areas, in the central parts of the region. As demand for industrial space grew, vacancies declined and rents increased. As demand for higher-value R&D, office, and retail/commercial uses grew, industrial locations became increasingly attractive for higher-value uses. Rents reached peak, high levels in 2000. As economic growth slowed thereafter and some sectors, particularly high technology, declined, vacancies increased and rents dropped from peak levels throughout the region. However, industrial space rents in 2002/2003 remain above levels in the mid-1990s, even though vacancies are at relatively high levels. The graphs in Figures 4, 6, and 9 show the dramatic changes in Bay Area warehouse, manufacturing, and R&D rents over time. The three charts in Figures 5, 7, and 10 highlight the relationship between rents, and changes in the demand for space relative to supply, as shown by changes in vacancy rates. The latter figures show that peak rent levels are associated with low vacancy rates, providing a classic economics lesson in demand and supply.

Although vacancy rates in 2002/2003 are at their highest levels in the past decade, rents for warehouse, manufacturing, and R&D space all remain above rents in the mid-1990s, when vacancy rates were lower. It is anticipated that rents will increase as current vacancies decline to more average levels. Thus, the trends show an overall pattern of increasing rents over time for Bay Area industrial space, beyond the cyclical effects of the economy.

Warehouse and Manufacturing Space

The supply of warehouse and manufacturing space has remained relatively stable in major Bay Area markets over the past decade, while the supply of land devoted to warehouse and manufacturing uses declined. Small amounts of new space were added in some locations (as existing industrial sites were redeveloped or uses intensified) and space was removed in other locations (as industrial sites were used for higher-value uses). Industrial rents increased over time reflecting the growth of demand for industrial space in the Bay Area, the lack of increase in overall supply, and increased competition for industrial locations in the major market areas from higher-value uses.

In 2002, overall average rents for *warehouse* space in major Bay Area markets were about 40 percent higher than rents in 1995, although rents have come down from peak levels and vacancies have increased. Among the major markets, warehouse rents have increased most in San Mateo County (67 percent higher in 2002 compared to 1995), followed by rents in San Francisco (50 percent higher), Santa Clara County (41 percent higher), and the East Bay I-80/880 corridor (36 percent higher). The higher increases in rents on the Peninsula and in San Francisco reflect the stronger demand for space in those market areas relative to the supply, and the increasing intensity of use of the remaining warehouse space. The trends in warehouse rents for the major Bay Area markets are shown in Figures 4 and 5, and in Table 7.

TABLE 7
CHANGES IN INDUSTRIAL RENTS AND VACANCY RATES
FOR MAJOR BAY AREA MARKETS, 1995-2002/03

	1995	1997	1998	2000	2002	2003	**Change 1995-2002**
Rents ($ per sq. ft. per mo.)							
Warehouse	$0.37	0.47	0.54	0.72	0.52	0.50	**+41%**
Manufacturing	$0.41	0.57	0.77	1.30	0.67	0.62	**+63%**
R&D	$0.79	1.51	1.58	4.00	1.29	1.20	**+63%**
Vacancy Rates							
Warehouse	6.8%	4.9%	3.9%	2.8%	9.1%	10.6%	
Manufacturing	5.9%	4.1%	3.1%	2.1%	6.7%	7.3%	
R&D	7.2%	4.8%	9.5%	3.4%	20.5%	21.7%	

NOTE: Major Bay Area industrial markets include San Francisco, San Mateo County, Santa Clara County, and East Bay I-80/880 corridor, as identified in Tables 2, 3, and 4. Comparable trend data is not available for the more outlying industrial markets.

Source: BT Commercial Real Estate; Hausrath Economics Group.

Average rents for *manufacturing* space in major Bay Area markets were about 60 percent higher in 2002 than in 1995. Rents for the large share of manufacturing space in the East Bay I-80/880 corridor (about 60 percent of the total) increased by 70 percent over that period. Rents for manufacturing space in Santa Clara County increased by about 38 percent, while rents for the relatively small amount of manufacturing space in San Mateo County doubled over the period. The reasons behind these trends are similar to those described for warehouse space above. The trends in manufacturing rents for major Bay Area markets are shown in Figures 6 and 7, and in Table 7.

Similar data is not available to identify trends in industrial rents and vacancy in the Tri-Valley area, Napa/Solano County areas or in San Joaquin County locations. However, analyses of industrial rents in some of those areas in 2000[5] (at the peak of the Bay Area real estate boom) compared to rents in early 2003 provide some indications of trends. It is notable that while rents

[5] Work done by Hausrath Economics Group for the *Port Services Location Study* for the Port of Oakland in late 2000 and early 2001.

Figure 4
Bay Area Warehouse Rents 1995-2003

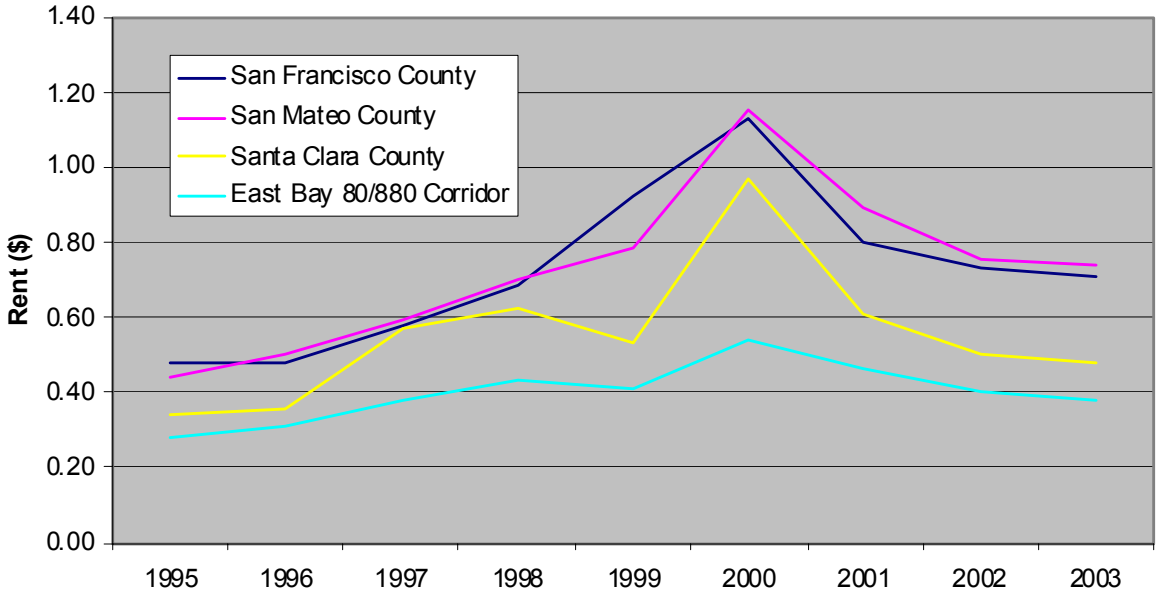


Figure 5
Bay Area Warehouse Vacancy and Rents 1995-2003

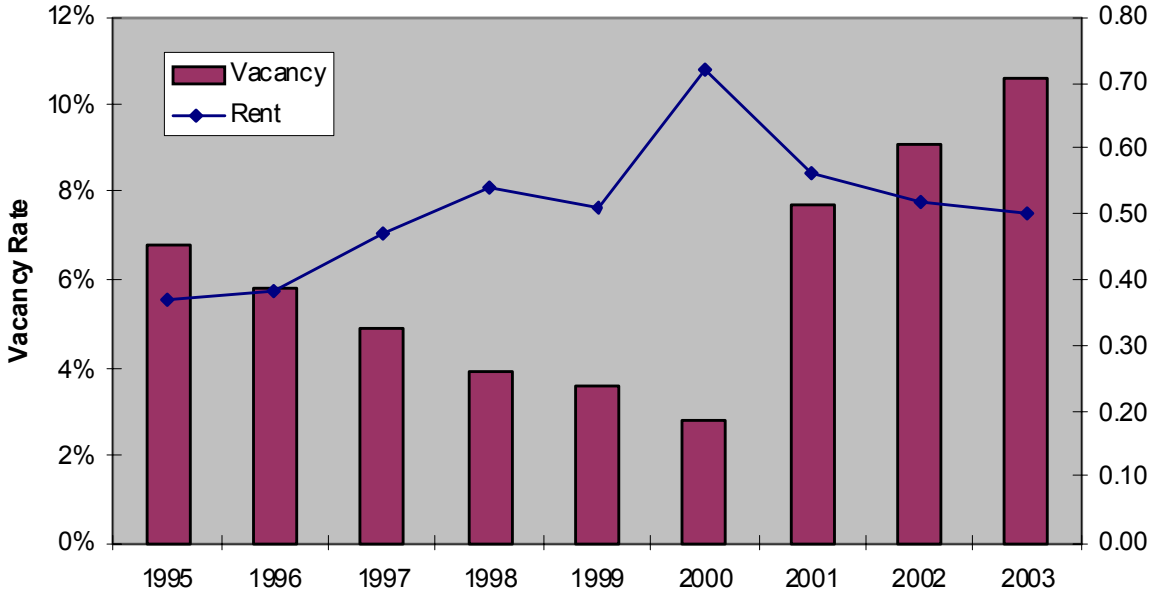


Figure 6
Bay Area Manufacturing Rents 1995-2003

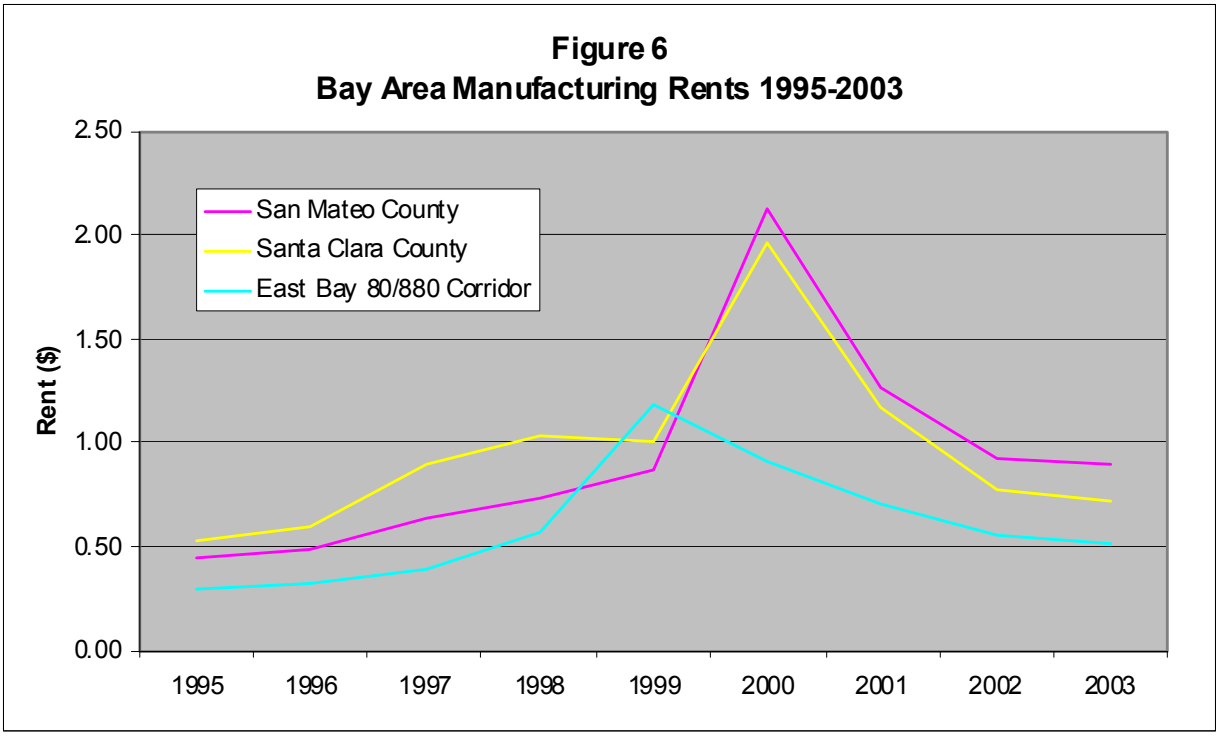
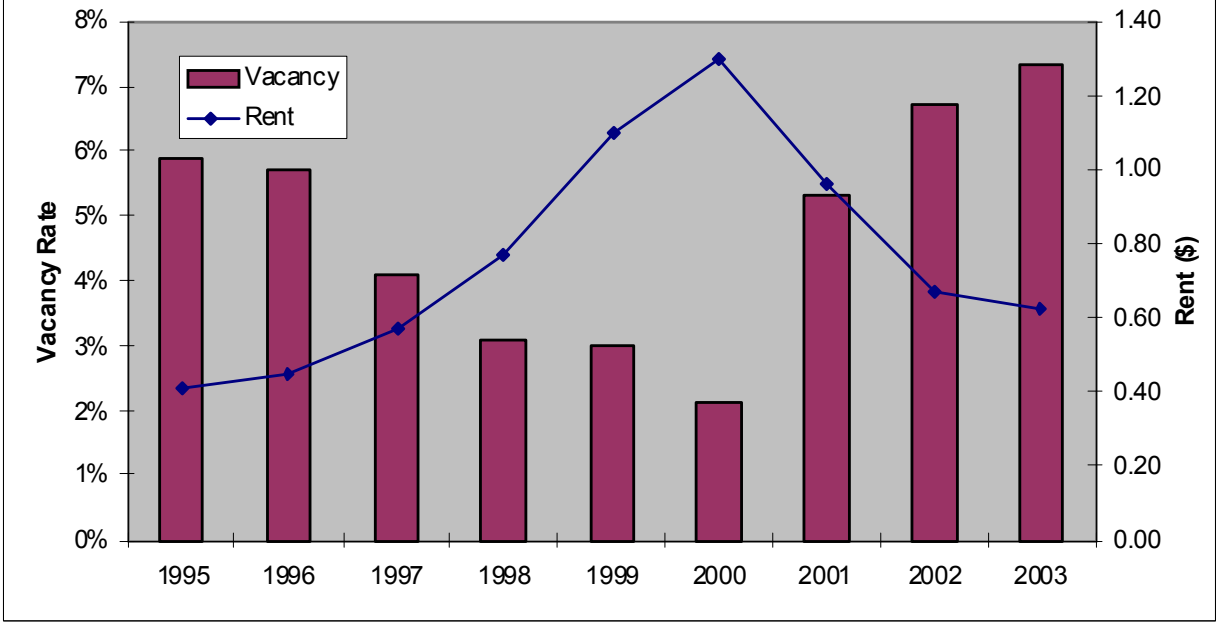


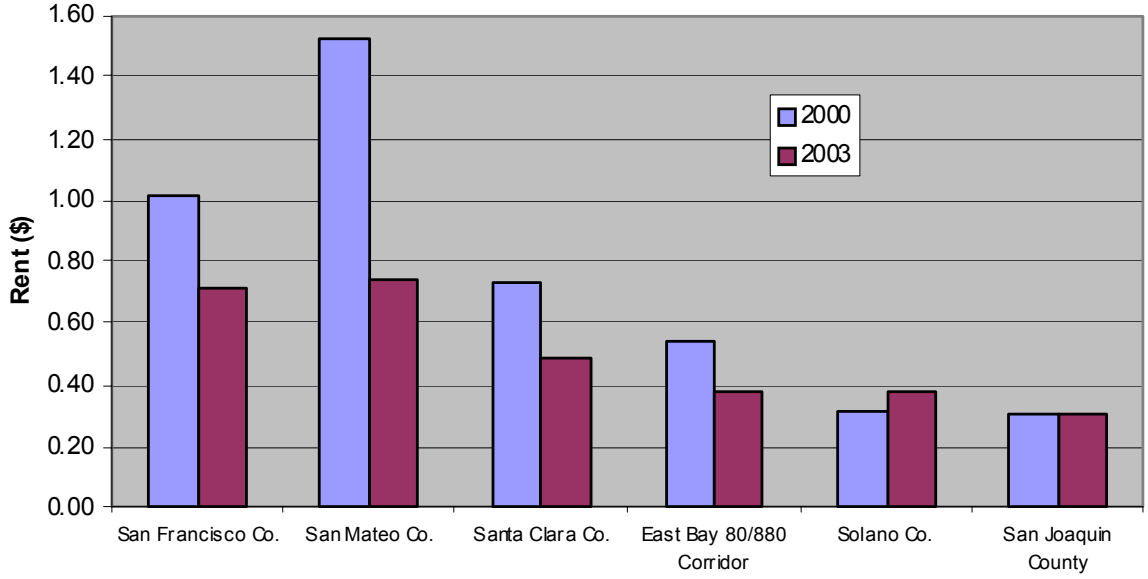
Figure 7
Bay Area Manufacturing Vacancy and Rents 1995-2003



in all major inner Bay Area industrial markets reached high levels at the peak of the market in 2000 and are lower in 2003, that is not the case for industrial rents in these, more outlying market areas.

Industrial rents in Solano County areas along I-80 and in Benicia are higher in 2003 than in 2000, about 20 percent higher overall. In San Joaquin County industrial areas, rents are at about the same levels in 2003 as in 2000. These trends reflect the more recent growth of demand for outlying industrial locations in these areas, at least partly in response to market conditions and higher rents in the major, urbanized industrial markets. The trends in these areas also indicate much greater ability to expand the supply of industrial land and building space to meet demand, and much less competition for industrial sites from higher-value uses. Industrial development has been occurring in these counties, and there is additional land available for future industrial development. This is particularly true in the San Joaquin County area, where market listings for available industrial space exceeded 14 million square feet in early 2003 for the Tracy, Stockton/Lodi, and Lathrop/Manteca/Modesto areas, combined. Figure 8 provides a comparison of warehouse rents for the different market areas in 2000 and 2003, and highlights the differences and inter-relationships in market dynamics between the more centralized major industrial market areas and the more outlying industrial market areas.

Figure 8
Bay Area Warehouse Rents - 3rd Qtr 2000 and 1st Qtr 2003



R&D Space

As explained earlier in this report, R&D space represents a relatively new product type in the Bay Area. Further, R&D uses typically support higher land values than warehouse and manufacturing uses, and are developed at higher densities. During the high technology boom of the late 1990s, R&D rents increased substantially and led to development of new R&D space in the Bay Area. R&D space in the major Bay Area markets increased by about 19 million square feet, or 11 percent, from 2000 to 2003. The majority of that space was built in Santa Clara County, with notable amounts also developed in southern Alameda County, northern San Mateo County, and the Livermore/Tri-Valley area.

The high vacancy rates for R&D space in 2003 (about 22 percent overall) reflect the recent declines in the high technology industrial sectors as well as the recent expansion of the supply of R&D space. Average R&D rents have declined from peak levels in 2000, but remain at levels that are 50 to 60 percent higher than rents in 1995. Available rent data report average asking rents for available space. Given the high vacancy rates, it is likely that real estate deals are being made at lower rent levels. The R&D market trends are summarized in Figures 9 and 10.

Trends in Industrial Location Patterns

Trends in employment in the major goods movement industries can be combined with the industrial real estate market data to further highlight and explain significant trends in regional location patterns for the business activities using industrial space. Employment data for the major goods movement industries occupying industrial space are summarized in Tables 8, 9, 10, and 11.[6]

Transportation and Warehousing Business Activities

San Joaquin County Has Become a Significant Trucking, Warehouse, and Distribution Center Serving the Bay Area. Its Importance Will Continue to Grow.

Most notable from employment trend data is the growth and strengthening of San Joaquin County as a significant trucking, warehouse, and distribution center serving the Bay Area and entire northern California area. Since 1990, employment has more than doubled in

[6] As the industrial classification system for reporting employment is in transition, data are provided using both the new (NAICS) and soon-to-be-former (SIC) classification systems. Each system provides a somewhat different characterization of the goods movement industries, making both summaries relevant to this analysis.

Under each classification system, it can be noted that there is some lack of comparability across counties as to the employment categories for which data are presented, particularly within the transportation category. Missing data occur when the amount of employment in a category is small, when it is suppressed for confidentiality reasons because of the prevalence of a major employer or because of few employers in that category, or because of the lack of comparability of the data available over time (1990-2001). Nevertheless, the available data are useful in identifying overall patterns in the differences among counties and in the trends over time.

Figure 9
Bay Area R&D Rents 1995-2003

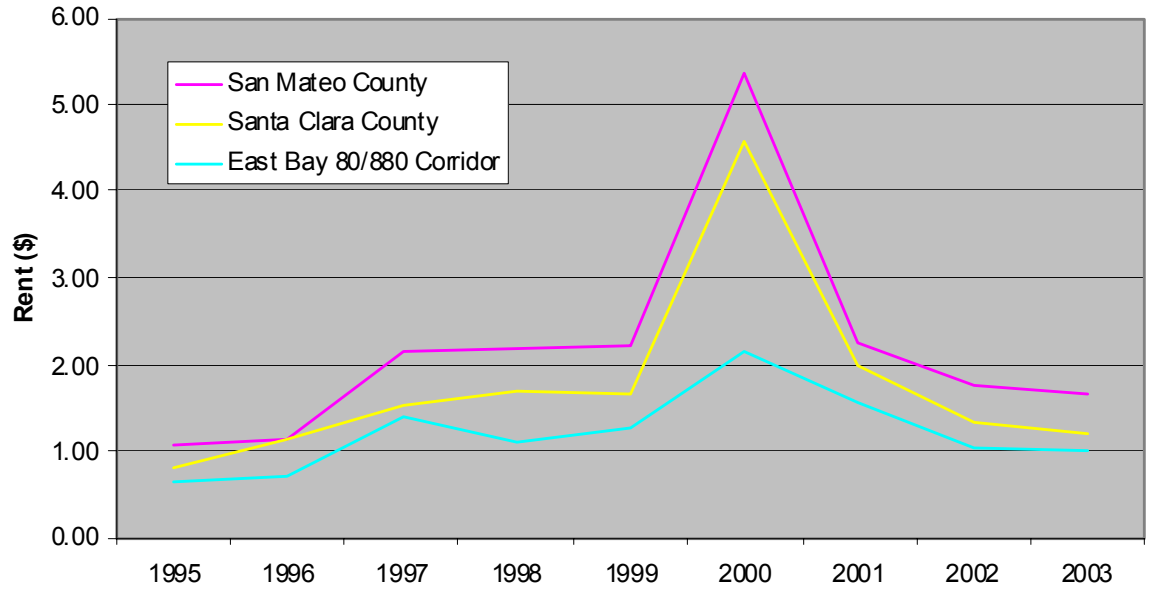
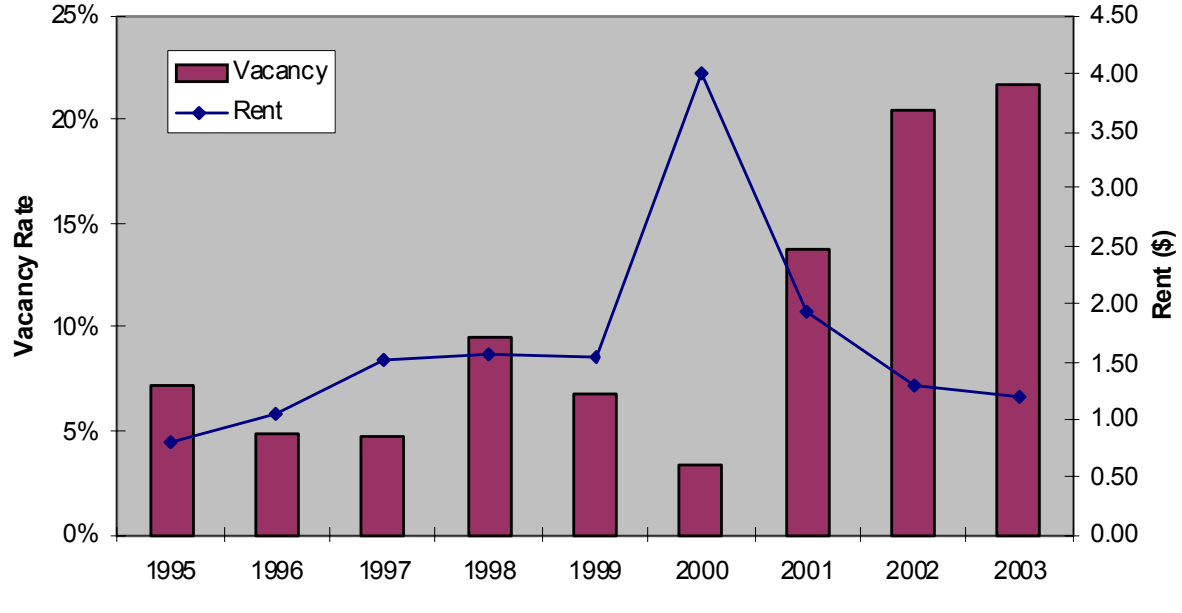


Figure 10
Bay Area R&D Vacancy and Rents 1995-2003



transportation and warehousing industries in San Joaquin County, with the most growth in warehousing and trucking business activities. The substantial growth of trucking and warehousing in San Joaquin County reflects the fact that the growth and expansion of these activities serving Bay Area markets are now largely occurring in San Joaquin County instead of in the nine-county Bay Area. The employment data also show some shifts of these activities from Bay Area locations to San Joaquin County over time. By 2001, employment in warehousing and trucking in San Joaquin County exceeded warehouse and trucking employment in eight of the nine Bay Area counties except for Alameda County. An available supply of lower-cost land in proximity to the major highway systems and to the growing Bay Area and Sacramento regions explains this trend. Both short- and long-term employment projections anticipate that it will continue.

> *Alameda County and San Mateo County Maintain Prominent Positions as Bay Area Locations for Transportation Industries. Real Estate Market Pressures Could Affect the Longer-term Viability of These Locations for Transportation Industries and Their Expansion.*

Employment data also show that Alameda County and San Mateo County maintain prominent positions as Bay Area locations for transportation industries. Alameda County is notable for the presence of trucking and warehouse businesses and for air transportation services, as well as for water and other transportation services. Over the past decade, there has been substantial employment growth in transportation industries in Alameda County, with much of that growth associated with the expansion of courier/messenger services and air transportation businesses. Projections anticipate continued growth of Alameda County transportation industries due to the County's central location, its diverse economy, and major expansions of both the airport and seaport facilities. However, there also is anticipated to be increasing real estate market competition for Alameda County locations, such as those along the I-80/880 corridor, that could affect the longer-term viability of these locations for transportation industries and their expansion (discussed further in a later section).

San Mateo County actually has the largest total amount of transportation employment among Bay Area counties, with the large majority associated with air transportation, including the San Francisco International Airport and courier/messenger services. A presence of trucking and warehousing and other transportation services also remains there. Transportation employment grew in San Mateo County over the past decade, led by air transportation. Problems in the airline industry are anticipated to affect San Mateo County in the near term, while longer-term growth potentials are dependent on potential airport expansion. There also will continue to be real estate market competition for the limited industrial locations in San Mateo County, that are already the most costly in the region.

TABLE 8
BAY AREA/SAN JOAQUIN-STANISLAUS EMPLOYMENT FOR GOODS MOVEMENT INDUSTRIES - 2001
(Using SIC/Standard Industrial Classification System)

	San Francisco	San Mateo	Santa Clara	Alameda	Contra Costa	San Joaquin	Stanislaus	Solano	Napa	Sonoma
Total Nonfarm Employment	586,100	372,500	1,016,500	718,700	340,000	191,700	149,600	118,700	58,500	189,700
Transportation	***15,600***	**35,200**	***16,900***	**31,300**	7,600	***10,900***	4,400	2,900	800	3,500
Local & Interurban Pass. Trans.	2,600	1,200								
Trucking & Warehousing	2,800	3,400	*6,700*	**11,800**	2,500	**8,600**	2,900			
Water Transportation	1,300	100		***3,300***	800					
Air Transportation	4,400	**25,900**	n/a	**11,200**	1,900					
Other Transportation	4,400	4,600	**10,200**	5,000	2,400	2,300	1,500			
Manufacturing	25,600	35,400	**254,000**	**95,900**	25,500	23,600	26,100	11,000	10,600	32,300
Durable Goods	5,500	***21,800***	**233,100**	**64,400**	10,100	12,200	8,100	4,600	2,400	***20,100***
Nondurable Goods	**20,100**	13,700	**20,900**	**31,500**	15,400	11,500	**18,000**	6,400	8,200	12,200
Wholesale Trade	18,600	19,000	**52,600**	**55,700**	12,200	9,300	6,800	4,800	1,600	6,700
Wholesale--Durable	9,500	11,100	**43,400**	**34,900**	7,300	4,700	2,800	2,900	700	3,500
Wholesale--Nondurable	9,100	7,900	9,200	**20,800**	4,800	4,600	4,000	1,800	900	3,300
Construction & Mining	17,900	20,500	**49,200**	**41,900**	29,800	13,100	11,100	11,000	3,900	13,700

NOTE: Bold indicates locations with the largest amounts of employment in each industry; bold italics indicates notable amounts of employment, although not the largest amounts.

Source: California Employment Development Department

TABLE 9
BAY AREA/SAN JOAQUIN-STANISLAUS EMPLOYMENT FOR GOODS MOVEMENT INDUSTRIES - 1990-2001
(Using SIC/Standard Industrial Classification System)

	San Francisco		San Mateo		Santa Clara		Alameda		Contra Costa		San Joaquin		Stanislaus		Solano		Napa		Sonoma	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total Nonfarm Employment	27,700	5.0%	76,900	26.0%	202,000	24.8%	122,300	20.5%	57,100	20.2%	39,000	25.5%	32,100	27.3%	22,900	23.9%	16,300	38.6%	50,400	36.2%
Transportation	-4,100	-20.8%	3,400	10.7%	**4,100**	32.0%	**6,100**	24.2%	2,300	43.4%	**4,900**	**81.7%**	900	25.7%	600	26.1%	200	33.3%	900	34.6%
Local & Interurban Pass. Trans.	200	8.3%	300	33.3%																
Trucking & Warehousing	-1,700	-37.8%	700	25.9%	-600	-8.2%	-100	-0.8%	-700	-21.9%	**4,400**	**104.8%**	500	20.8%						
Water Transportation	-1,600	-55.2%	0	0.0%			-400	-10.8%	600	300.0%										
Air Transportation	1,700	63.0%	700	2.8%	n/a		n/a		n/a											
Other Transportation	-2,900	-39.7%	1,600	53.3%	**4,800**	**88.9%**	-4,600	-47.9%	500	26.3%	500	27.8%	400	36.4%						
Manufacturing	-12,700	-33.2%	700	2.0%	-4,200	-1.6%	**18,500**	23.9%	-8,100	-24.1%	300	1.3%	700	2.8%	3,600	**48.6%**	5,300	**100.0%**	**11,500**	**55.3%**
Durable Goods	-1,100	-16.7%	1,000	4.8%	2,000	0.9%	**19,600**	**43.8%**	-3,200	-24.1%	1,300	11.9%	1,000	14.1%	1,800	**64.3%**	1,600	**200.0%**	**6,600**	**48.9%**
Nondurable Goods	-11,600	-36.6%	-200	-1.4%	-6,300	-23.2%	-1,100	-3.4%	-4,900	-24.1%	-900	-7.3%	-300	-1.6%	1,800	**39.1%**	**3,600**	**78.3%**	**4,800**	**64.9%**
Wholesale Trade	-11,000	-37.2%	-4,300	-18.5%	-300	-0.6%	**13,500**	32.0%	2,000	19.6%	1,100	13.4%	900	15.3%	1,600	50.0%	800	100.0%	100	1.5%
Wholesale--Durable	-6,800	-41.7%	-1,600	-12.6%	2,200	5.3%	**10,300**	**41.9%**	1,300	21.7%	1,000	27.0%	0	0.0%	1,200	**70.6%**	300	**75.0%**	300	9.4%
Wholesale--Nondurable	-4,200	-31.6%	-2,700	-25.5%	-2,500	-21.4%	**3,200**	18.2%	600	14.3%	100	2.2%	900	29.0%	300	20.0%	400	**80.0%**	-100	-2.9%
Construction & Mining	4,400	32.6%	7,100	**53.0%**	**19,400**	**65.1%**	**14,400**	**52.4%**	9,600	**47.5%**	4,900	**59.8%**	3,600	**48.0%**	3,600	**48.6%**	1,100	39.3%	3,900	39.8%

NOTE: Bold indicates locations with the largest amounts of employment growth in each industry and with the largest percentages of growth in employment over the analysis period

Source: California Employment Development Department

TABLE 10
BAY AREA/SAN JOAQUIN-STANISLAUS EMPLOYMENT FOR GOODS MOVEMENT INDUSTRIES - 2001
(Using NAICS/North American Industry Classification System)

	SF/San Mateo/ Marin	Santa Clara	Alameda/ Contra Costa	San Joaquin	Stanislaus	Solano/Napa	Sonoma
Total, All Industries	1,057,400	1,008,100	1,057,800	206,800	163,800	185,500	196,700
Transportation, Warehousing and Utilities	54,800	16,300	41,300	12,300	4,300	4,300	4,000
Transportation and Warehousing	**47,500**	14,400	**38,000**	11,300			
Air Transportation	**24,000**		4,800				
Residual-Rail Transportation	**16,400**	10,700	9,300	2,300			
Truck Transportation			**8,600**	**5,400**			
Couriers and Messengers	**7,100**	3,700	**10,400**				
Warehousing and Storage			**5,000**	**3,600**			
Manufacturing	56,100	**240,600**	**113,200**	22,500	23,000	20,900	30,400
Durable Goods	30,200	**222,700**	**73,100**	12,500	8,200		19,400
Nondurable Goods	**25,900**	17,800	**40,100**	10,100	14,900		11,000
Wholesale Trade	**31,100**	**40,700**	**55,400**	6,700	5,400	5,100	6,000
Merchant Wholesalers, Durable Goods	16,100	**30,100**	**32,100**				
Merchant Wholesalers, Nondurable Goods	11,600	10,600	**17,500**				
Wholesale Electronic Markets/Agents/Brokers	3,500		5,800				
Construction	**47,600**	**47,800**	**69,700**	13,200	11,000	14,500	13,700

NOTE: Bold indicates locations with the largest amounts of employment in each industry.

Source: California Employment Development Department

TABLE 11
BAY AREA/SAN JOAQUIN-STANISLAUS EMPLOYMENT FOR GOODS MOVEMENT INDUSTRIES - 1990-2001
(Using NAICS/North American Industry Classification System)

	SF/San Mateo/Marin		Santa Clara		Alameda/ Contra Costa		San Joaquin		Stanislaus		Solano/Napa		Sonoma	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total, All Industries	106,300	11.2%	188,600	23.0%	175,800	19.9%	38,500	22.9%	31,700	24.0%	42,100	29.4%	51,800	35.7%
Transportation, Warehousing and Utilities	-4,000	-6.8%	2,300	16.4%	8,100	24.4%	6,200	101.6%	400	10.3%	400	10.3%	500	14.3%
Transportation and Warehousing	-1,400	-2.9%	2,500	21.0%	**9,400**	32.9%	**6,200**	**121.6%**						
Air Transportation	-700	-2.8%			**2,200**	**84.6%**								
Residual-Rail Transportation	-1,700	-9.4%	**1,100**	11.5%	400	4.5%	**1,100**	**91.7%**						
Truck Transportation					500	6.2%	**1,800**	**50.0%**						
Couriers and Messengers	1,100	18.3%	1,400	**60.9%**	**6,600**	**173.7%**								
Warehousing and Storage					-100	-2.0%	**3,300**	**1100.0%**						
Manufacturing	-9,300	-14.2%	-7,800	-3.1%	**8,100**	7.7%	-1,800	-7.4%	-600	-2.5%	**7,300**	**53.7%**	**10,200**	**50.5%**
Durable Goods	200	0.7%	-400	-0.2%	**15,700**	27.4%	1,200	10.6%	1,500	22.4%			**5,800**	**42.6%**
Nondurable Goods	-9,500	-26.8%	-7,500	-29.6%	-7,600	-15.9%	-2,900	-22.3%	-2,100	-12.4%			**4,400**	**66.7%**
Wholesale Trade	-8,100	-20.7%	3,400	9.1%	**14,300**	**34.8%**	-100	-1.5%	1,200	28.6%	2,500	**96.2%**	1,100	22.4%
Merchant Wholesalers, Durable Goods	-3,600	-18.3%	4,500	17.6%	**10,100**	**45.9%**								
Merchant Wholesalers, Nondurable Goods	-1,600	-12.1%	-1,000	-8.6%	**4,800**	**37.8%**								
Wholesale Electronic Markets/Agents/Brokers	-2,800	-44.4%			-600	-9.4%								
Construction	**15,200**	**46.9%**	**19,100**	**66.6%**	**19,800**	39.7%	3,700	38.9%	3,800	**52.8%**	4,700	**48.0%**	3,300	31.7%

NOTE: Bold indicates locations with the largest amounts of employment growth in each industry and with the largest percentages of growth in employment over the analysis period.
Source: California Employment Development Department

Manufacturing Business Activity

Santa Clara County is Home to a Large Share of the Region's Manufacturing Activity, Followed By Alameda County. In Addition to These Areas, Manufacturing Growth Has Been Occurring in the North Bay Counties as Well.

Most notable from employment data is the large presence of manufacturing industries and employment in Santa Clara County, with most in the high technology sectors (included under durable manufacturing in the tables). Manufacturing employment in Santa Clara County currently accounts for about half the total for the region. However, despite the large numbers, employment in manufacturing activities in Santa Clara County remained steady during the 1990s and then declined recently.[7] Alameda County has the second largest amount of manufacturing employment in the region, and experienced over 20 percent growth of manufacturing employment throughout the 1990s. Over the past decade, it also is notable that the highest rates of growth in manufacturing in the region have been in the North Bay, in Solano, Napa, and Sonoma counties. The North Bay counties offer available land for expansion of manufacturing businesses and a labor supply residing in close proximity. These overall patterns are expected to continue in the future.

Construction Business Activity

Construction Activity Occurs Throughout the Region.

Construction occurs throughout the region, and construction employment has grown substantially in all counties over the past decade, in support of population and employment growth. Construction activities involve the movement of substantial amounts of construction materials, typically by truck. Construction is projected to continue to grow in the future, in support of commercial, industrial, and residential growth throughout the region.

Future Growth Projections

Future employment projections for goods movement industries, embodying the trends described above, are summarized in Table 12.

[7] The large growth of the late 1990s through 2000 associated with software and internet development is reported in the service sector, not in manufacturing.

TABLE 12
BAY AREA/SAN JOAQUIN EMPLOYMENT BY INDUSTRY - GROWTH FROM 2000-2025

	San Francisco		San Mateo		Santa Clara		Alameda		Contra Costa		San Joaquin /a/		Solano		Napa		Sonoma	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Construction	4,480	20.0%	1,750	9.3%	**19,800**	38.6%	**11,140**	32.0%	**8,140**	34.6%	4,600	39.7%	5,000	38.9%	1,190	27.3%	**7,310**	**50.2%**
High Technology Manufacturing	1,420	22.2%	3,880	23.2%	**53,380**	26.8%	**15,920**	**41.4%**	2,320	32.7%	n/a	n/a	460	**48.4%**	2,520	**124.1%**	5,480	32.8%
Other Manufacturing	5,340	22.1%	6,030	28.3%	**19,040**	26.8%	**16,960**	24.3%	**8,550**	32.6%	1,000	4.0%	4,650	**48.3%**	1,150	14.2%	5,480	32.8%
Transport., Communic., Utilities	**8,330**	20.0%	**11,960**	27.1%	**11,010**	35.8%	**16,020**	32.0%	**7,830**	34.5%	**13,600**	**116.2%**	2,200	38.9%	620	27.1%	4,030	**50.4%**
Wholesale Trade	5,190	22.1%	5,500	26.1%	**16,610**	26.8%	**16,750**	30.4%	4,040	32.6%	n/a	n/a	2,150	**64.4%**	950	36.7%	**7,450**	**101.6%**
Retail Trade	19,810	21.0%	21,940	34.4%	32,390	21.9%	32,690	27.1%	21,850	33.2%	59,600	198.7%	13,280	50.8%	4,120	35.4%	17,350	45.5%
FIRE, Services, Government	91,500	21.7%	55,080	26.7%	151,600	28.9%	153,040	40.3%	81,630	40.8%	51,900	48.2%	36,260	58.8%	15,360	50.7%	58,210	60.7%
Agriculture, Mining	0	0.0%	(40)	-1.1%	(330)	-4.9%	(10)	-0.3%	(10)	-0.3%	(1,000)	-5.9%	90	3.0%	300	5.4%	470	6.0%
Total Jobs	136,070	21.4%	106,140	26.8%	303,830	27.8%	262,520	34.9%	134,360	37.2%	130,700	64.5%	64,000	52.0%	25,910	39.2%	105,310	51.5%

NOTE: Bold indicates locations with the largest amounts of employment growth in goods movement industries and with the largest percentages of growth in employment in goods movement industries over the analysis period.

/a/ San Joaquin Co. job growth is for 2000-2020. Retail and wholesale jobs are combined for San Joaquin Co. High technology manufacturing is not identified for San Joaquin Co.

Source: ABAG Projections 2002; Hausrath Economics Group

OVERALL FUTURE REGIONAL DEVELOPMENT PATTERNS AND TRENDS OF SIGNIFICANCE TO GOODS MOVEMENT

As the Bay Area region continues to grow, the pattern of future development is notable from the perspective of goods movement in two ways:

- The region will *grow and intensify within the central areas* along the major transportation corridors around San Francisco Bay, including the major center cities; and

- The region will continue to *expand outward*, as well, to the east, the north, and the south.

The pattern of regional development and of associated employment and population growth will affect the future supply of locations available and affordable to the industries involved in goods movement. It also will affect the locations for growth of demand for goods movement services in the future.

Intensification Within Central, Bayside Parts of the Region

As the region has grown and land/sites for expansion have become increasingly scarce, the boom of the late 1990s generated renewed market interest in the center cities of the region and in other central locations along the major transportation corridors around San Francisco Bay. Many of these areas had been passed over in prior decades in favor of development in the more suburban parts of the region. Fewer remaining development sites in the suburbs and a new-found enthusiasm for urban development and city living have supported the trend of "back to the center". For example, the 2000 Census showed growth of population in both San Francisco and Oakland, after having recorded population declines for prior decades. Although regional economic growth overall has slowed since 2000, market interest in the older, central parts of the region has continued. For example, there are numerous development projects underway and in the planning process in communities along the I-80/880 corridor in the East Bay, such as those in Oakland, San Leandro, and Richmond. The assets of a central location, good accessibility, and relative affordability within the regional context are anticipated to remain strong in the future and to support business and population growth in the central parts of the region.

The trend of growth and intensification within the central parts of the region has also been supported by the decommissioning of several military bases in the Bay Area, most of which are located around San Francisco Bay (Alameda Naval Air Station, Oakland Army Base, Oak Knoll, Hunters Point, Hamilton, Mare Island, and Moffett Field). The reuse of these sites/facilities will continue to support substantial growth of residential, commercial, and industrial development in these central locations in the future. As the region continues to grow, there also has been renewed interest from both a market and public policy perspective, in development of locations with good public transit accessibility. For example, BART has become an increasingly

important factor in attracting/supporting development in the vicinity of its stations, including those in the central areas. This trend is also anticipated to continue.

The overview of regional growth patterns presented in Table 13 highlights the large amounts of both population and employment growth projected for the central parts of the region along the major transportation corridors around San Francisco Bay. Over the 25 years from 2000 through 2025, 62 percent of regional job growth and 47 percent of regional population growth are projected to occur in the central, bayside areas of the region, including San Francisco, cities along the Hwy. 101 corridor through San Mateo County, cities around the Bay in northern Santa Clara County including San José, Alameda County cities along the I-80/880 corridor in the East Bay from Fremont to Richmond in Contra Costa County, and the Contra Costa and Solano County cities on either side of the Carquinez Straits. Within this pattern, the growth projected for many of the older East Bay cities along the I-80/880 corridor represents the most change from past trends.

Growth and the intensification of activity in the central parts of the region generally involves the reuse and redevelopment of already developed areas, referred to as "infill" development, rather than construction on currently undeveloped lands. The redevelopment and reuse sites generally contain underutilized facilities and older buildings. They typically are located at the periphery of downtown areas and along the older transportation corridors, and typically include sites in obsolete industrial and commercial uses, sites with largely storage and parking uses, and large surplus sites like the former military bases (such as Alameda Naval Air Station), and former railroad company properties (such as the Mission Bay site in San Francisco). Often redevelopment and reuse projects become part of a transition process whereby marginal, low-value uses are replaced with higher-value uses and a greater density of development. Examples include the newly developed loft housing neighborhood in Oakland's formerly industrial Jack London District; the redevelopment of Mission Bay in a formerly railroad/industrial area of San Francisco; the development of biotech campuses on former industrial/railroad sites in northern San Mateo County; the continuing development and reuse of former railroad and industrial areas in Emeryville and adjacent parts of Oakland for retail and business/campus uses; and the development of large retail uses on formerly industrial/commercial sites along the major freeways as has occurred in San Leandro, Union City, and East Palo (with recently opened IKEA store).

From the perspective of goods movement in the future, continuing growth and infill development within the "inner ring" of the Bay Area, will increase the need for goods movement services to serve the growth of businesses and population in these central areas. At the same time, the intensification of activity and development in the central parts of the region will continue to have implications for the availability and cost of the large amount of industrial space that currently remains in central locations along the major transportation corridors around San Francisco Bay (as summarized in Tables 1, 2, and 3 earlier in this report). This is particularly the case for the older warehouse and manufacturing space along the I-80/880 corridor in the East Bay, and the older industrial space remaining in the eastern parts of San Francisco and South San Francisco/San Bruno areas of the northern Peninsula. As in the recent past, the competition for

TABLE 13
OVERVIEW OF REGIONAL GROWTH PATTERNS, 2000-2025
BASED ON ABAG *PROJECTIONS 2002* TRENDS FORECAST

	2000		2025		Growth 2000-2025			
					Population		Jobs	
	Population	Jobs	Population	Jobs	No.	%	No.	%
Central, Bayside Areas along Transportation Corridors around S.F. Bay, including Center Cities /a/	4,413,039	2,752,920	5,083,980	3,483,190	**+670,941**	**+15%**	**+730,270**	**+27%**
	65%	73%	62%	71%	**47%**		**62%**	
Other Central Areas in the Western and Eastern Parts of the Region /b/	962,059	402,140	1,107,120	507,940	+145,061	+15%	+105,800	+26%
	14%	11%	13%	10%	10%		9%	
Rest of the Region to the North, East, and South /c/	1,408,662	598,610	2,032,600	941,460	**+623,938**	**+44%**	**+342,850**	**+57%**
	21%	16%	25%	19%	**43%**		**29%**	
TOTAL BAY AREA	6,783,760	3,753,670	8,223,700	4,932,590	+1,439,940	+21%	+1,178,920	+31%
	100%	100%	100%	100%	100%		100%	

NOTE: The summaries above are based on aggregations of the data for cities and unincorporated county areas in the region.

/a/ Includes San Francisco, San Mateo County cities along Hwy. 101 corridor, Santa Clara County cities along Hwy. 101/880 corridor, Alameda County cities and county areas along I-80/880 corridor, Contra Costa County cities along I-80, and Solano County cities in I-80/780/Carquinez area (Vallejo and Benicia).

/b/ Includes Marin County, central Contra Costa County, and western parts of San Mateo and Santa Clara counties.

/c/ Includes southern Santa Clara County (below San José) to the south; eastern Contra Costa County and the Tri-Valley areas of Alameda and Contra Costa counties to the east; and Sonoma County, Napa County, and the rest of Solano County (except for Vallejo and Benicia) to the north.

Source: ABAG *Projections 2002*; Hausrath Economics Group.

land in these areas will continue to increase in the future, resulting in reduced availability and higher prices for the remaining industrial locations. The trend is significant from the perspective of industrial space users.

Expansion Outward to the East, North, and South

As the Bay Area region grows, it is anticipated to continue to expand outward as well. The push to the east is well underway and anticipated to continue with growth in eastern Contra Costa County, in the Tri-Valley areas of Alameda and Contra Costa County, and with large growth projected for nearby San Joaquin County. The I-580 corridor will become increasingly important in the future. The role of San Joaquin County as a major warehouse, distribution, and trucking center serving the Bay Area will continue to expand. From the perspective of goods movement, the "economic region" already extends beyond the nine Bay Area counties to include points east, in San Joaquin County.

Expansion in the northern parts of the region is projected to continue with both employment and population growth in Solano, Sonoma, and Napa counties. Expansion also is projected to continue to the south, in southern Santa Clara County as well as in neighboring counties to the south.

The outward expansion provides lower-cost alternatives in more outlying locations for both businesses and households seeking more affordable options. For the goods movement industry, the continued expansion outward is significant as future industrial growth will continue to seek lower-cost, outlying locations, as existing industrial locations in the central parts of the region become increasingly more costly and more scarce. Expansion outward to the east and northeast will continue to be the most viable alternative for goods movement industries given the transportation linkages to the east and northeast (via I-580 and I-80). Over time, the major transportation routes around the Bay and connecting to points east will become increasingly more important for goods movement and the functioning of the goods movement industry.

The overview of regional development patterns in Table 13 indicates that about 43 percent of regional population growth is projected for the more outlying parts of the region along with about 29 percent of regional employment growth. Of note is the fact that the outlying areas are projected to include proportionally larger shares of regional growth than reflected by their current shares of total regional population and employment. As a result, the percentage change in these areas is projected to be substantial, with population in outlying areas increasing by 44 percent and employment by 57 percent, over the 2000 to 2025 time period (see Table 13). Thus, over time, proportionally more of the population and business activity in the region will be occurring in the outer parts of the region, compared to current conditions. The outward-expanding pattern presented by the numbers in Table 13 would be more dramatic if San Joaquin County were included along with the nine Bay Area counties.

ROLE OF LAND USE POLICY AND COMMUNITY ATTITUDES IN AFFECTING REGIONAL DEVELOPMENT PATTERNS AND GOODS MOVEMENT

Along with market factors, public policy also affects land use in the region and plays a role in determining the pattern of regional growth and development. Public policy affects land use through regulation and through numerous incentives and disincentives that result from the following:

- Land use policies and regulations at the regional and local levels;
- Community redevelopment powers in California as implemented at the local level;
- Criteria for the distribution of state and federal funds, such as funds for roadways, public transit, and other infrastructure; and
- The tax system, particularly the system for funding local public services and other government expenditures.

The rest of this report discusses the role of land use policy and community attitudes from the perspective of effects on regional development patterns and on the location and operation of goods movement industries in the region. Regional policy is addressed first, followed by consideration of the local perspective.

Regional Land Use Strategy for Smart Growth

Regional Planning Effort Identifies a Smart Growth Vision for the Region That is Adopted by Regional Planning Agencies

A major regional planning effort was undertaken in the Bay Area from 1999 through 2003, known as the *Smart Growth Strategy/Regional Livability Footprint Project*. The impetus for this effort were concerns about continuation of regional growth in a pattern of spreading ever outward, the lack of affordable housing in the Bay Area, increasingly crowded roadways, and a shrinking supply of open space. The intent was to envision where people will live and work in the Bay Area in the future, and to consider whether it was possible to change the course of regional growth to achieve a better balance between accommodating an expanding populace, providing adequate housing, improving transportation, and at the same time protecting the environment and preserving open space. The effort involved numerous public workshops throughout the region, the participation of regional advocacy organizations and a steering committee of local governments and regional agencies, and development of a series of reports and maps for review and consideration.

The planning process led to the formation of a new vision for future growth in the region, referred to as the "Smart Growth Vision for the Bay Area". The types of incentives and regulatory changes required to achieve the vision also were identified. In early 2003, ABAG developed their next series of economic/demographic projections for the region, *Projections 2003*, based on the new Smart Growth Vision. These policy-based projections were adopted by the ABAG Executive Board and have now become ABAG's official forecast for the region. The projections will become the basis for MTC's *2004 Regional Transportation Plan*, the document that guides future transportation investments in the region, as well as the Bay Area Air Quality Management District's clean air plans and other regional plans. The intent is to integrate a new vision into local and regional planning and to begin the process of implementing the Smart Growth Vision for the Bay Area.

Regional Smart Growth Vision Seeks to Alter Prevailing Development Patterns

ABAG describes Smart Growth as "development that revitalizes central cities and older suburbs, supports and enhances public transit, promotes walking and bicycling opportunities, and preserves open spaces and agricultural lands". The Smart Growth Vision seeks to increase densities and the amount of development in already developed areas of the region, focusing substantially more growth in existing cities and along transit corridors in the central parts of the region. While significant changes in favor of development in central, infill locations are already underway, the Smart Growth Vision seeks to push for much more redevelopment, particularly in the center cities and in older cities along the major transportation corridors around San Francisco Bay. Some, new, compact development also occurs on vacant lands, but the Vision seeks to reduce the amount of future development in outlying locations.

Overall, a more efficient and compact, regional development pattern with more growth and higher densities in the central areas is envisioned to increase the total amount of population housed within the region in the future. The intent is to accommodate more population growth within the region and reduce the need to house a growing commuter workforce in nearby counties outside the nine-county Bay Area.

The emphasis of the Smart Growth Vision is on residential development, with the goals of increasing the amount of housing built, expanding affordable housing opportunities, and fostering a more compact development pattern with transportation, open space, and environmental benefits. While it is anticipated that business activity will benefit from an expanded workforce in closer proximity to places of work, the smart growth strategy does not directly address commercial and industrial development. Mixed-use development projects are encouraged, and higher-density populations in central areas are expected to support increased business activity nearby.

ABAG describes its *Projections 2003* as a practical, though aggressive, forecast for the region, designed around policy changes toward development. It is aggressive in that it assumes state, local, and regional changes in the underlying fiscal and regulatory structure behind current

growth patterns. It is practical in that *Projections 2003* do not fully meet the goals set forth for the Smart Growth Vision, but provide a middle ground between forecasts under current trends and full implementation of the Smart Growth Vision as currently articulated.

Comparison of ABAG's *Projections 2002* Trends Forecast and the more recently developed *Projections 2003* Smart Growth Forecast provide an indication of the extent that changes in public policy are intended to change regional development patterns. As summarized in Table 14, even under this "middle ground" projection, *50 percent more population and housing growth* is anticipated for the central parts of the region along the major transportation corridors around San Francisco Bay under ABAG's Smart Growth Forecast compared to the Trends Forecast. Under Smart Growth policies, 60 percent of the region's housing and population growth is forecast to occur in the central parts of the region, compared to 47 percent of regional growth under the Trends Forecast (see Table 13 presented earlier). This difference results in 336,460 more people residing in 124,270 more households in the central areas of the region over the next 20 to 25 years. Lower population growth is shown for the rest of the region under the Smart Growth Forecast as a result of the shift of growth to the central areas, with 15 percent lower population growth forecast for the outlying parts of the region (about 94,300 fewer people). In total, for the region overall, there is anticipated to be about 16 percent more total population (234,110 more people residing in 87,450 more households) in the nine-county Bay Area under the Smart Growth Forecast.

Under the Smart Growth Forecast, the differences in employment are much smaller than the differences in population, although the pattern of differences is similar (see Table 14). About 10 percent more employment growth (about 75,500 more jobs) is forecast for the central parts of the region under the Smart Growth Forecast, about five percent less employment growth (about 16,510 fewer jobs) is forecast for outlying areas, and about four percent more total employment growth (about 50,200 more jobs) is anticipated in the region overall.

More detailed summaries of the differences in regional growth under the Smart Growth Forecast for corridors and subareas of each of the three major parts of the region identified in Table 14 are presented in Tables 19 and 20 at the end of this report.

Regional Smart Growth Strategy Has Implications For the Goods Movement Industry

As envisioned, increasing development on infill locations in the central parts of the region will mean substantially more reuse and redevelopment of lands currently or formerly in industrial, transportation, and commercial uses. There are surplus sites including former military bases and abandoned railroad properties that are envisioned to be developed. There are underutilized sites in marginal and sometimes vacant industrial and commercial uses. There also are sites with lower-density uses such as parking, storage, older warehouse, other industrial, and older commercial uses that would become candidates for redevelopment. While these areas are already under pressure for development to higher-value uses, the changes envisioned by the regional Smart Growth strategy would *increase and accelerate those pressures substantially*.

TABLE 14
COMPARISON OF REGIONAL GROWTH PATTERNS, 2000-2025
ABAG *PROJECTIONS 2002* TRENDS FORECAST COMPARED TO *PROJECTIONS 2003* SMART GROWTH FORECAST

	Trends Forecast *Projections 2002* Growth 2000-2025				**Smart Growth Forecast *Projections 2003*** Growth 2000-2025				**Differences in Growth Under Smart Growth Forecast**	
	Population		Jobs		Population		Jobs		Population	Jobs
	No.	%	No.	%	No.	%	No.	%		
Central, Bayside Areas along Transportation Corridors around S. F. Bay, including Center Cities /a/	+670,941	+15%	+730,270	+27%	+1,007,401	+23%	+805,750	+29%	**+336,460**	**+75,480**
	(47%)		(62%)		(60%)		(66%)		**50% more growth**	**10% more growth**
Other Central Areas in the Western and Eastern Parts of the Region /b/	+145,061	+15%	+105,800	+26%	+137,011	+14%	+97,040	+24%	-8,050	-8,760
	(10%)		(9%)		(8%)		(8%)		6% less growth	8% less growth
Rest of the Region to the North, East, and South /c/	+623,938	+44%	+342,850	+57%	+529,638	+38%	+326,340	+55%	-94,300	-16,510
	(43%)		(29%)		(32%)		(26%)		15% less growth	5% less growth
TOTAL BAY AREA	+1,439,940	+21%	+1,178,920	+31%	+1,674,050	+25%	+1,229,130	+33%	**+234,110**	**+50,210**
	(100%)		(100%)		(100%)		(100%)		**16% more growth**	**4% more growth**

NOTE: The summaries above are based on aggregations of the data for cities and unincorporated county areas in the region.

/a/ Includes San Francisco, San Mateo County cities along Hwy. 101 corridor, Santa Clara County cities along Hwy. 101/880 corridor, Alameda County cities and county areas along Hwy/ I-80/880 corridor, Contra Costa County cities along I-80, and Solano County cities in I-80/780/Carquinez area.
/b/ Includes Marin County, central Contra Costa County, and western parts of San Mateo and Santa Clara counties.
/c/ Includes southern Santa Clara County (below San José) to the south; eastern Contra Costa County and the Tri-Valley areas of Alameda and Contra Costa counties to the east; and Sonoma County, Napa County, and the rest of Solano County (except for Vallejo and Benicia) to the north.

Source: ABAG *Projections 2002* Trends Forecast and *Projections 2003* Smart Growth Forecast; Hausrath Economics Group.

Many more sites would be redeveloped in the next 20 to 25 years. Further, redevelopment is envisioned at higher densities in some cases, that would support higher land values for the new uses and increase the feasibility of redevelopment.

Analysis of the effects of the Smart Growth strategy on growth and redevelopment in the major market areas for Bay Area warehouse and manufacturing space indicates substantially greater redevelopment pressures in these areas in the future under implementation of the Smart Growth Vision. As summarized in Table 15, nearly all (90 percent) of the additional population and housing growth forecast for the central, bayside parts of the region under the *Projections 2003* Smart Growth Forecast is anticipated to occur in the cities along the transportation corridors around the Bay that are the major markets for industrial space. Notable increases in population and housing growth are shown for all of the major market areas for industrial space around the Bay, including those along the East Bay I-80/880 corridor, in San Francisco, along Highway 101 in the northern Peninsula area in San Mateo County, and in Santa Clara County cities along I-880 and Hwy. 101. Of particular note are the large increases (in absolute and/or percentage terms) in population and housing growth under the Smart Growth Forecast, shown for San Francisco, South San Francisco and San Bruno, San José, Oakland, San Leandro, and Richmond, all of which include large amounts of the region's supply of industrial space. While increases in housing and population growth will be accommodated in the downtown areas of San Francisco, Oakland, and San José, in particular, there also will be increases in growth and redevelopment in the older industrial and transportation corridors of all of these cities.

There also are anticipated to be notable increases in employment growth under the Smart Growth Forecast for many of the cities with large supplies of industrial space, as shown by the data in Table 15. The large increases in population in the central areas will directly support additional retail and service uses, some of which is likely to add to the demand for retail development of large sites with good freeway accessibility, often the same types of sites desired by goods movement businesses.

Shifting additional growth to and accelerating redevelopment in the central parts of the region under the regional Smart Growth strategy will make it increasingly more difficult and more costly for goods movement businesses to remain in these central areas. Effects on the goods movement industry businesses, such as those involved in warehousing, trucking, construction, and manufacturing, would be of the following types:

- Reduced availability of industrial locations in the central parts of the region, including locations for leasing existing industrial space and locations for developing new industrial space;

- Higher rents and prices for the available industrial space;

- Increased pressures for goods movement businesses to seek locations in outlying areas, due both to availability and price/rent/affordability considerations; and

TABLE 15
EFFECTS OF SMART GROWTH STRATEGY IN MAJOR MARKETS FOR WAREHOUSE AND MANUFACTURING SPACE

	Population Growth			Employment Growth		
Area	*P2002* Trends Forecast 2000-2025	Difference in Growth Under *P2003* Smart Growth Forecast		*P2002* Trends Forecast 2000-2025	Difference in Growth Under *P2003* Smart Growth Forecast	
San Francisco	**38,467**	**+74,600**	**+194%**	**136,070**	**+15,520**	**+11%**
Brisbane	1,883	-540		7,720	+760	
S. San Francisco/San Bruno	12,503	+7,100	+57%	18,660	+2,290	
Burlingame/Millbrae	6,628	-1,800		5,180	+1,710	+33%
Belmont/San Carlos	5,095	+2,200		8,860	+220	
San Mateo County	**26,109**	**+6,960**	**+27%**	**40,420**	**+4,980**	**+12%**
Mountain View	10,023	+4,800		17,000	+3,470	+20%
Sunnyvale	17,714	+6,600		36,950	-8,840	
Santa Clara	31,639	-900		34,300	-3,550	
San José	207,302	+121,000	+58%	131,770	+44,220	+34%
Milpitas	23,490	+3,000		19,260	-1,100	
Santa Clara County	**290,168**	**+134,500**	**+46%**	**239,280**	**+34,200**	**+14%**
Richmond	13,657	+14,700	+108%	16,200	+540	
Berkeley	8,857	+4,500		9,020	-1,610	
Oakland	50,016	+39,600	+79%	49,550	+10,480	+21%
San Leandro	8,148	+7,400	+91%	9,850	+6,250	+63%
Hayward	20,540	+3,000		22,470	-90	
Union City	17,817	+6,400		14,590	+4,950	+34%
Newark	10,929	-1,700		7,960	-3,910	
Fremont	29,787	+12,300		38,110	+8,220	+22%
East Bay I-80/880	**159,751**	**+86,200**	**+54%**	**167,750**	**+24,830**	**+15%**
Major Markets	**514,495**	**+302,260**	**+59%**	**583,520**	**+79,530**	**+14%**
Total: Central Bayside Areas	**670,941**	**+336,460**	+50%	**730,270**	**+75,480**	+10%
Percent Major Markets	**77%**	**90%**		**80%**	**105%**	
Total: Bay Area Region	1,439,940	+234,110	+16%	1,178,920	+50,210	+4%
Percent Major Markets	36%	129%		49%	158%	

NOTE: The cities/areas listed above are those identified in Tables 2 and 3 earlier in this report as having the larger amounts of warehouse and manufacturing space in the major industrial markets in the central parts of the region.

Source: ABAG *Projections 2002* Trends Forecast and *Projections 2003* Smart Growth Forecast; Hausrath Economics Group.

- Increased costs of goods movement services (due to higher space costs and/or higher transportation costs if travel times and distances increase).

Thus far, it does not appear that the implications of the regional Smart Growth Vision for goods movement and goods movement industries have been assessed. Potentially, such effects can be addressed as part of the efforts to incorporate the smart growth projections into the upcoming *Regional Transportation Plan*. There are the types of economic effects described above. There also could be transportation and environmental effects associated with the outward expansion of goods movement businesses and increasing travel times and distances between outlying locations and the central parts of the region, as the demand for consumer-related goods movement services will increase in the central areas, and major airport and seaport facilities serving the region will remain and expand there as well.

Infrastructure Decisions and Other Public Investments Affect Land Use and Development and Will Affect Achievement of Smart Growth Vision

Infrastructure decisions and funding at the state, regional, and local levels have been affecting land use and development in the Bay Area since the beginning. The availability of basic infrastructure, including water/sewer, utilities, and roads, supports and facilitates new development, particularly the development of vacant land in expanding parts of the region. Accessibility via the regional transportation network of freeways and public transit facilities/services further supports and facilitates growth and development, in both central and outlying parts of the region. Local and regional community attitudes regarding the desirability of growth and development in certain areas/locations affect the availability of infrastructure as does the availability of state and federal funds and the criteria for their distribution.

As much of the region is already developed or has basic infrastructure already in place, decisions regarding transportation system improvements and mobility within the large region have become increasingly important. The increasing desirability of growth and development in the central parts of the region depends on transportation accessibility as well as the proximity offered by a central location. The locations of growth within the central areas are influenced by transportation infrastructure decisions and investments. Examples of recent transportation infrastructure decisions and investments that are having an affect on growth and development are identified below. In these cases, local and regional community attitudes and support played an important role in the infrastructure decision process.

- The rebuilding and relocation of the Cypress Freeway/I-880 in Oakland following its collapse after the Loma Prieta Earthquake.

  At the regional level, the rebuilding of this freeway replaced a missing link in the regional freeway system, and improved regional mobility and accessibility

over conditions after the earthquake. Accessibility for the Port of Oakland maritime facilities also was improved, in line with terminal expansion plans.

At the local level, the relocation of the rebuilt freeway on land further to the west, created a new physical boundary between the West Oakland community to the east and the maritime port operations to the west. The new route reunited parts of West Oakland that had been split by the former freeway route. The new route has resulted in improved market potentials for residential, commercial, and light industrial development on the east side of the freeway. It also has been accompanied by strong community advocacy for land use policies and controls that limit industrial uses on the eastern side, particularly those with trucks and truck activity. The boundary provided by the location of the new freeway and redevelopment and reuse along the corridor of the former freeway have become an impetus for land use changes in the area in the future.

- BART station locations and the expansion of BART service to the west, the east, and potentially to the south.

  The BART station areas have become focal points for growth and development in the vicinity due to the regional accessibility they provide. BART station areas in the older, central parts of the region, such as the Fruitvale, MacArthur, and West Oakland stations in Oakland, the downtown Hayward station, and the Richmond station, are now being rediscovered as desirable locations for reuse and redevelopment. As the system expands, it provides similar benefits in new areas. The expansion of BART to add the Pittsburg/Bay Point and Dublin/Pleasanton stations have extended these land use benefits further to the east. Similarly, BART extension to the San Francisco Airport and to South San Francisco, San Bruno, and Millbrae areas in northern San Mateo County has brought improved accessibility to these areas. Improved accessibility is supporting investments in the areas and enhancing potentials for growth and development. Potential expansion into Santa Clara County to San José could also have similar land use effects.

- Third Street light rail system extension along eastern parts of San Francisco.

  Extension of MUNI's light rail system along Third Street from the downtown area south to the Bayview Hunters Point neighborhood will provide improved transportation accessibility in the eastern parts of the city. The transit line will better connect residential areas to downtown San Francisco and will enhance commercial potentials and residential development potentials along the corridor. The new route's location through the older industrial areas along the City's eastern waterfront has enhanced redevelopment potentials along the

corridor, further encouraging the transition of older industrial areas to higher-value uses.

- Bus Rapid Transit Systems along major corridors in the Inner East Bay.

  AC Transit is instituting new and improved transit services along major corridors in the Inner East Bay. They include the recently instituted Rapid Bus system along the San Pablo Avenue corridor from Contra Costa College in San Pablo to downtown Oakland and the planned Bus Rapid Transit (BRT) system along the Telegraph Avenue/International Blvd./East 14th St. corridor from downtown Berkeley and the U.C. Berkeley campus to downtown Oakland and Jack London Square to downtown San Leandro and Bay Fair Mall. The systems will better connect locations along these lines with faster, more reliable, and improved transit services. The increased accessibility is anticipated to enhance the desirability of locations along the routes for residential, business/commercial, cultural/entertainment, and educational uses and activities, and to support the continued revitalization and redevelopment of the central parts of the East Bay.

In the future, infrastructure and other public investments broadly defined, will be important in supporting the region's Smart Growth Vision and determining if and how it is achieved. Emphasis on redevelopment of infill locations in the central part of the region requires investments in improving and rebuilding old and deteriorating infrastructure to accommodate growth and new uses. The maintenance and improvement of public transit facilities and systems will be important. Other public investments will also be needed in support of redevelopment, so as to cover the higher costs of redevelopment and reuse in the central areas compared to development on vacant land. Examples include public investments in parking structures, site clean-up, and local roadway and streetscape improvements. Public investments in affordable housing also are needed to support the large increase in workforce housing envisioned by the regional Smart Growth strategy.

EFFECTS OF LOCAL LAND USE POLICIES AND PRACTICES

Role of Local Land Use Policies and Practices Within the Market Context

In general, land use policies at the local level guide and set the rules for the private sector use and development of individual properties throughout the region. Typically, local land use policies identify permitted uses of property, allowable densities of development, and a variety of standards for new development such as parking requirements and building setbacks. There also can be standards for the use of properties, particularly those in business use, such as noise standards, emission standards, and sign and lighting standards.

It is the interaction of market potentials and land use policies and practices that determines the uses in an area and the extent and types of new development. First and foremost, market demand must exist for uses to be viable in an area, or for new development to be feasible there. Local land use policies affect what's allowed in an area within the context of the choices supported by the market. In fact, the stronger the market, the more effect local policies can have on allowing and encouraging certain uses or in managing or prohibiting others. Similarly, the stronger the market and the greater the potentials for new development, the more effect land use policies and development standards can have on the density, scale, and feasibility of new development. Within the market context, land use policies can affect the relative desirability of different locations for uses and development of various types.

Local Land Use Policies Reflect Community Attitudes As Well As Market Context

Local land use policies generally reflect the attitudes and desires of the local community. Under state law, the local community's *General Plan* sets forth the community's vision of itself. The *General Plan* Land Use Element describes the land use vision in detail. Local zoning ordinances and related regulations and standards are adopted to implement the *General Plan* land use policies. A community's land use policies also tend to reflect or respond to the local market context. The *General Plan's* vision for the community is articulated within the land use choices realistically available locally, within the broader regional market context. Community actions to change land use policies often are in response to changing market conditions that bring support for new uses and/or new types of development. Within the market context, changes in land use policy depend on community attitudes towards encouraging and supporting, or discouraging and restricting, particular uses and types of development.

Community Benefits and Incentives Support Redevelopment/Reuse to New Uses Over Retention of Industrial Uses and Goods Movement Industries

As described earlier in this report, regional growth patterns and trends are in support of both growth and redevelopment on infill sites in the central parts of the region, and expansion outward with growth and new development in the eastern, northern, and southern parts of the region. The recently adopted Smart Growth Vision for the region advocates a more compact pattern of growth that seeks to redirect trends to achieve more housing and population growth in central areas and in the region overall, and less expansion outward. Within this overall context, there are issues about the effects of market trends and regional policy direction on the large supply of industrial space remaining in the central parts of the region, and on the options for expanding the supply of industrial space in more outlying locations. The future could have significant impact on warehouse, distribution, and transportation activities within the goods movement industry. Incrementally, land use policies and decision-making at the local level will continue to affect the overall, aggregate regional outcome.

When considering the options for new uses and redevelopment and reuse of older, industrial areas, community attitudes and local land use decision-making have generally allowed and supported the transition and redevelopment. In some cases, local Redevelopment Agency and/or economic development activities along with land use policies have been proactive in attracting and encouraging redevelopment and reuse for new uses. There are a number of reasons and incentives in favor of redevelopment/reuse from the local community's perspective. These are summarized in Figure 11 and discussed below.

Community Benefits and Costs of Redevelopment/Reuse for New Uses in Older Industrial Areas

Typically, more intensive, higher-value uses (retail, office, business park/R&D/light industrial, residential) are perceived to be more desirable to the local community and to have less local impacts, particularly if industrial uses with heavy truck activity are being replaced. High on the list of local benefits and incentives in favor of higher-value uses include a higher tax base for the public sector and financial benefits for property owners. Higher tax base is a particularly important factor to local governments, and differences in tax revenues among uses and densities of development can be substantial (discussed further below). Higher property values to owners also is an important factor locally as it can provide strong incentives for property owners and developers to advocate for redevelopment. Depending on the type of new use, redevelopment to higher-value uses can bring broader community benefits as well, including increased availability of goods and services locally and higher sales tax revenues (with new retail uses), additional employment opportunities locally (with higher-density office, business park, and R&D uses), or additional housing opportunities (with residential uses). In many cases, the attraction of new, higher-value development, particularly to an older, urban area, can improve the community's image and help to attract additional investment and development locally.

The attractiveness of commercial, business park/R&D, and/or residential uses can also come from concerns about the local impacts of industrial uses and goods movement activities, particularly if there are residential areas nearby and/or uses with heavy truck activity. The local impacts of concern can include noise from trucks or from on-site industrial activities, safety issues related to truck usage or to industrial processes, air quality issues associated with dust, odors, and emissions from trucks or industrial processes, and visual quality concerns as can be associated with unattractive outdoor storage areas or yard fencing and visible truck parking. These issues lead to land use conflicts where industrial uses are near to residential uses or to active commercial areas. Truck usage also raises local government concerns about the greater need and costs for local road maintenance and repair because of the damage caused by truck usage. The use or presence of hazardous materials on-site can add to local concerns about safety, air quality, and site environmental impacts.

In addition to the local benefits and incentives in favor of higher-value uses, there also are local costs and adverse impacts of more intensive commercial, business park/R&D, and residential development compared to industrial uses. They include more automobile traffic on local streets as a result of more intensive development with more workers, shoppers, and/or residents in the

FIGURE 11

COMMUNITY BENEFITS AND COSTS OF REDEVELOPMENT/REUSE FOR NEW USES IN OLDER INDUSTRIAL AREAS

LOCAL BENEFITS

- Higher-value uses
  - Financial benefits to property owners
  - Higher tax base to public sector
- Less local impact
  - Noise
  - Safety
  - Air quality
  - Visual quality
  - Road maintenance/repair
- Increased availability of goods and services locally (with retail uses)
- Higher sales tax revenues to the public sector (with retail uses)
- Additional housing (with residential uses)
- More employment locally (with office, business park, and R&D uses)

LOCAL COSTS

- More auto traffic on local streets
- Loss of good-paying, blue-collar jobs locally
- Potentially, higher public service costs to public sector

area. Reuse or redevelopment of formerly industrial areas can mean the loss of good-paying, blue-collar jobs in the local area, of the types involved in goods movement and other industrial activities. There also could be higher costs associated with providing public services to retail or residential uses that would offset at least some of the advantages of a higher tax base and higher revenues. This is particularly the case for residential uses, which typically have higher public service costs than commercial and industrial uses.

On balance, however, the local benefits typically are seen to outweigh the costs, and local land use policies and decision-making are in support of new uses, particularly commercial and business park/R&D uses, for all of the reasons just described. Local support often exists for residential development as well, because of the shortage of housing in the region and where sites are large enough to create new residential areas and neighborhoods.

Around the region, there is some local interest in retaining industrial uses and/or areas for industrial business activities, particularly when the industrial activities are seen as being in support of other business activity in the community (such as supplying the tourist or office sectors), as supporting airport and seaport activity also in the community or nearby, and/or as providing beneficial job opportunities for residents in the community. In these situations, industrial market strengths have tended to increase the intensification of industrial activities, encourage facility improvements, and support higher rents and values for the industrial properties, providing some local tax revenue benefits as well. Industrial locations with good proximity to transportation corridors, and locations away from residential and active commercial areas are the most likely to survive. However, even in these cases, the longevity of the industrial activities is often more dependent on market forces than on strong public sector support in the face of market forces.

Difficulties of Balancing Regional and Local Benefits and Costs

Although there is some local interest in retaining industrial uses and areas for industrial business activities, that is more the exception than the norm. Apart from the communities with airports or seaports or specific economic development policies targeted at industrial activities, the benefits of retaining industrial and goods movement activities in the central parts of the region accrue to the region more broadly and are not focused on locations or particular communities. For example, shippers and receivers, and businesses and consumers more broadly, benefit from faster and less costly transportation services, and from fewer miles traveled and less air emissions, as may be facilitated by the retention of industrial areas in the central parts of the region within good proximity to business and population centers. These types of benefits are somewhat "hidden" and accrue more broadly to the larger region. They are difficult to "balance" against the more locally-focused benefits of higher-value uses.

The broad and somewhat hidden nature of the regional economic benefits also means that there aren't local constituencies to advocate for preservation of industrial areas and land uses, particularly at the local level. The immediacy of the benefits of redevelopment/reuse for

property owners and developers, local governments, and community residents provide much stronger incentives for action and advocacy in local land use decision-making.

Case Studies Showing Property Value and Tax Base Advantages of Higher-value Uses

A comparative analysis of the local property value and general government revenues associated with different potential land uses and densities of development on a given site points out the large differences in benefits to property owners and local government from different development options.

The analysis evaluates property values and local government revenues generated by a range of possible land use developments, assuming a central location in the Bay Area such as the Inner East Bay along the I-80/880 corridor. The development options include warehouse, light manufacturing/light industrial, R&D/flex space, business park/campus, retail, office, and residential development prototypes. The office and residential developments cover a range of potential development densities.

The land use development prototypes are identified in Table 16. For a hypothetical five-acre site, the amount of building space that could be developed varies substantially depending on the land use and development density assumed. The prototypes for industrial and commercial space range from about 65,000 square feet for retail development, to around 100,000 square feet for the warehouse, light industrial/manufacturing, and R&D flex space prototypes, to 140,000 square feet for business park/campus-style development, and to office development of 200,000 to 400,000 square feet depending on density. The residential development prototypes range from 75 townhouse units to medium- and higher-density developments of 225 to 500 apartments, condominiums, and/or lofts.

Whether any of these prototypes would actually be developed at a particular location depends on the market support for each type of development at that location. It also depends on the feasibility of development on a particular site based on the costs of preparing the site for development (including the costs of demolition, site clean-up, site preparation, and infrastructure improvements). The following analysis evaluates all of the prototypes to identify the full range of development benefits that could be available.

Property Value

Property values differ substantially among the land use development prototypes, based on the type and density of development, as shown in Table 16 (right columns). The differences in *land* values in particular provide a measure of the comparative benefits to property owners of developing their land for different uses. For example, the land values from retail and business park developments are about twice as high as the land value for warehouse use. Higher-density office development provides land values that range from about three to 10 times as large as the values for warehouse/industrial uses. Residential development can also support substantially

TABLE 16
LAND USE DEVELOPMENT PROTOTYPES FOR EVALUATING TAX BASE ADVANTAGES OF ALTERNATIVE USES

	Density Assumptions			Hypothetical Development			Property Value Estimates (2003 dollars)			
Land Use	Building Stories	Floor Area Ratio /a/	Housing Units Per Acre	Land Area (Acres)	Building Area (Sq. Ft.)	Housing Units	Land Value Per Sq. Ft.	Building Value Per Sq. Ft.	Total Property Value	Total Value Per Sq. Ft. of Land
Warehouse	1	0.45		5	98,010		$6	$40	$5,227,200	$24.00
Light Ind'l/Mfg.	1	0.55		5	119,790		8	55	8,330,850	38.25
R&D Flex	1	0.50		5	108,900		9	75	10,127,700	46.50
Retail	1	0.30		5	65,340		15	85	8,820,900	40.50
Business Park/Campus	2	0.65		5	141,570		12	125	20,309,850	93.25
Office	3	0.90		5	196,020		18	140	31,363,200	144.00
Office	8	1.90		5	416,176		70	190	94,699,440	434.80
Townhouses	1-2		15	5		75	30	175	30,000,000	137.75
Apts./Condos/Lofts	2-3		45	5		225	41	145	45,000,000	206.60
Apts./Condos/Lofts	4-6		100	5		500	69	180	105,000,000	482.10

NOTE: The assumptions above reflect prototypical types of development in a central location such as the Inner East Bay along the I-80/880 corridor.

/a/ Ratio of building space (excluding parking garage space) to land area.

Source: Hausrath Economics Group

higher land values than warehouse or industrial uses. The large differences in value illustrate the strong financial incentives to redevelop properties from industrial to intensive, higher-value uses where there is market support for such development.

Tax Base Advantages

There are substantial differences among the land use development prototypes in the tax revenues provided to local governments (see Table 17).[8] These differences illustrate the local government incentives to support and encourage more intensive, higher-value development. (The following analysis evaluates only local government general fund revenues; the analysis does not consider the local public service costs associated with various types of development.)

- *Higher-density office development* provides the highest tax base among the development prototypes analyzed. The most dense office development prototype with an eight-story office building supports tax revenues that are over two times higher than the tax revenues from any of the other commercial and industrial development prototypes. It appears that office development of around four stories or more would support higher tax revenues than the other types of commercial/industrial development. It is the higher density of development, business activity, and employment in office development of four to eight stories that explains the higher tax base. The result also reflects the fact that the tax rates assumed for this analysis are for a city with relatively high business license taxes. The business license tax revenues represent about 60 percent to 70 percent of total tax revenues for the office development prototypes. The tax revenue estimates for office development would be lower in a city with lower business taxes, and there is variation in business license tax rates for cities throughout the region. Some office uses support sales tax revenues as well, which would add to the tax revenues shown for office uses in Table 17.

- *Retail development* generates high local tax revenues because of the sales tax revenues from retail sales captured on the site. Sales tax revenues represent 80 percent of total tax revenues estimated for retail development. The tax base provided by retail development is much higher than the tax base generated by the industrial, R&D, and business park/campus developments. Retail development would provide the highest tax base among potential developments in locations without market support for higher-density office or residential development. The differences in tax base between retail and other commercial and industrial development also increase in communities with lower business license taxes than assumed for this analysis. The sales tax revenues generated by retail development have become more desirable to

[8] Note that the tax base analysis herein identifies tax revenues to city General Funds for use in providing local public services and in supporting local government administration.

TABLE 17
TAX REVENUE ESTIMATES FOR LAND USE DEVELOPMENT PROTOTYPES

Central, Inner East Bay Location With Relatively High Tax Rates

Land Use	**Local Tax Revenues to City General Funds** (Annual revenues in 2003 dollars)	**Tax Revenues Per Sq. Ft. of Land**	Percent of Tax Revenue by Revenue Source: Property Tax	Sales Tax /a/	Business License Tax	Utility Users Tax	Motor Vehicle In-lieu	Total
Warehouse	$61,000	$0.28	23%	-	75%	2%	-	100%
Light Industrial/Manufacturing	57,200	0.26	40%	-	57%	3%	-	100%
R&D Flex	80,600	0.37	34%	-	64%	2%	-	100%
Retail	306,300	1.41	8%	80%	10%	2%	-	100%
Business Park/Campus	189,700	0.87	29%	-	69%	2%	-	100%
Office – 3-story	286,600	1.32	30%	-	69%	1%	-	100%
Office – 8-story	687,400	3.16	38%	-	61%	1%	-	100%
Townhouses	99,300	0.46	82%	-	-	8%	10%	100%
Apt./Condos/Lofts – 45/acre	169,600	0.78	72%	-	-	14%	14%	100%
Apt./Condos/Lofts – 100/acre	384,200	1.76	75%	-	-	14%	11%	100%

NOTE: The tax revenue estimates above assume the land use development prototypes identified in Table 16 and tax rates and local allocations of revenues as might apply in an urban area with relatively high tax rates. The tax revenues shown are City General Fund revenues.

/a/ Sales tax revenues are collected from some office, business park, and warehouse businesses, although these generalized estimates do not include sales tax revenues for those uses.

Source: Hausrath Economics Group

local governments, since the effects of Proposition 13 reduced local property tax revenues.

- *Residential development* supports a range of local tax revenues, as a function of the density of the development. Higher-density housing development, up to 100 units per acre, generates a relatively high tax base that falls below that generated by higher-density office development and above that generated by the other commercial and industrial uses. It is most similar to the tax base estimated for retail development. Residential development at medium to lower densities provides tax revenues that fall in the range of those provided by business park/campus-style and R&D flex space developments depending on the density, and above the tax revenues for industrial and R&D development.

  The tax base for the residential development prototypes is largely generated by property taxes, which represent about 70 to 80 percent of tax revenues.[9] The higher reliance on property tax revenues compared to the more diverse revenue base for commercial and industrial development could mean some differences over time in the comparison of tax base among types of development. Because of a two percent limit on annual increases in assessed value unless property is sold, the rate of growth of property tax revenues can lag behind that for other tax revenues, affecting the differences in tax base among types of developments. However, the continuing high appreciation in residential property values could somewhat offset this factor.

- *Warehouse, light industrial, and R&D/flex space developments* support relatively similar tax bases overall. The specific type of business operations in each type of space can affect the tax base, and the relative comparison of tax base among these uses. For example, some types of warehouse operations generate sales tax revenues, increasing the tax revenues over those estimated for the warehouse prototype in this analysis. The business license tax is typically a function of employment or gross receipts and can vary substantially depending on the nature of each business operation. Generally, however, R&D/flex development is likely to generate a higher tax base than light industrial, light manufacturing, or warehouse development. In the comparative analysis presented herein, the tax bases for the industrial developments are similar. The higher property values and property tax revenues for light industrial/light manufacturing development are offset by the higher gross receipts and business license taxes for the warehouse development.

[9] Although not estimated in this analysis, the local spending of new residents for convenience goods such as groceries, drugs, and other convenience items will contribute sales tax revenues to the local community over and above the spending of employees at places of work. If local spending were included in the tax base analysis, it would add proportionally more revenues to the residential uses than to the commercial and industrial land uses.

The relative rankings of the different types and densities of development in terms of tax base benefits to the local community appear to continue to generally apply under different tax rate assumptions and in different market contexts. Table 18 summarizes the results of a second set of prototypical development case studies for an outlying regional location with lower tax rates and lower property values than those described above. Overall, the tax revenue estimates for each of the relevant development prototypes in an outlying, low tax rate area are substantially lower than the estimates for a central location with relatively high tax rates. The differences are largely due to lower tax rates, although lower land values for development in an outlying location also have an effect. The business license tax rates, in particular, are substantially lower than under the earlier assumptions, and there is no utility users tax.[10] The higher-density office and residential prototypes are not included as they are not considered to be viable market choices in this outlying location.

The tax base estimates for the commercial and industrial development prototypes in an outlying location with lower tax rates indicate that retail development supports the highest tax revenues by far, followed by office, business park/campus, R&D/flex, light industrial/ manufacturing, and warehouse development, in that order. While the relative rankings of tax base benefits among outlying area development prototypes are similar to the rankings for the central area prototypes, the high tax revenues from retail development stand out much more in the outlying area context; they are significantly higher than the tax revenues from any of the other commercial and industrial development prototypes. This occurs where the local jurisdiction maintains a relatively low tax burden on non-residential uses. By comparison to local property tax revenues, the sales tax revenues from retail developments can be very large and provide strong incentives for supporting and attracting retail uses.

It is worth noting that the consideration of tax base benefits in this report does not include consideration of differences in public service costs among land uses that also will affect net fiscal impacts to local communities. The differences in public service costs among development prototypes could affect the differences in tax revenues described above. Typically, public service costs are found to be higher for residential land uses compared to commercial and industrial land uses, offsetting some of the differences in tax base benefits identified by the analysis above.

Basic Types of Local Industrial Land Use Policies and Controls Have Different Implications for the Location of Goods Movement Industries

There are several basic types of industrial land use policies and controls in the Bay Area. They affect where industrial and goods movement uses in particular, are allowed to locate and operate. The different approaches also have implications for the longer-term viability of industrial uses at

[10] Both business license tax rates and utility user tax rates are set by local governments. They have the discretion to set rates low as economic development incentives or to set them at higher levels to relieve the tax burden on residents. Further, low or no utility user taxes could mean that the municipality owns utilities and collects some departmental and citywide general overhead funds directly from utility customers rather than from taxes on utility use.

TABLE 18
TAX REVENUE ESTIMATES FOR LAND USE DEVELOPMENT PROTOTYPES

Outlying Location With Low Tax Rates

Land Use	**Local Tax Revenues to City General Funds** (Annual revenues in 2003 dollars)	**Tax Revenues Per Sq. Ft. of Land**	Percent of Tax Revenue by Revenue Source					
			Property Tax	Sales Tax /a/	Business License Tax	Utility Users Tax	Motor Vehicle In-lieu	Total
Warehouse	$8,700	$0.04	80%	-	20%	-	-	100%
Light Industrial/Manufacturing	15,000	0.07	75%	-	25%	-	-	100%
R&D Flex	19,700	0.09	70%	-	30%	-	-	100%
Retail	259,478	1.19	4%	95%	1%	-	-	100%
Business Park/Campus	37,200	0.17	76%	-	24%	-	-	100%
Office – 3-story	57,100	0.26	77%	-	23%	-	-	100%
Single-family Residential	17,700	0.08	74%	-	-	-	26%	100%

NOTE: The tax revenue estimates above assume the lower-density industrial and commercial land use development prototypes from Table 16, that are applicable in an outlying, location. Lower land values than those shown in Table 16 are assumed, as appropriate, for development in an outlying location. The estimates above also assume a low tax rate area, compared to the assumption of a higher tax rate revenue area for the tax estimates in Table 17.

/a/ Sales tax revenues are collected from some office, business park, and warehouse businesses, although these generalized estimates do not include sales tax revenues for those uses.

Source: Hausrath Economics Group

those locations. The different types of local industrial land use policies and controls are described below along with examples of how each is affecting the location of goods movement businesses. First, however, the key concerns addressed by local, industrial land use policy are identified along with comments on how and why the emphasis of local policy is changing in the Bay Area.

Key Concerns: Suitability for Industry and Minimization of Off-site Impacts

In general, local land use policies and controls relating to the locations for industrial and transportation uses in the Bay Area are intended to do the following:

- *Suitability for Industry*. Identify permitted locations that are suitable for industrial business operations from the perspective of the industries, in terms of such factors as good freeway access; proximity to rail, seaport, and/or airport facilities; adequate roadway characteristics for large trucks and other vehicles; separation from residential areas and active commercial districts; and/or appropriate facilities and building stock, in the case of already developed areas.

- *Minimization of Off-site Impacts.* Address the potential of industries to create off-site impacts such as noise, dust, odor, light/glare, truck traffic, and emissions through the identification of permitted locations that minimize the effects of potential off-site impacts on the community, and, in some cases, with operating standards and controls to minimize impacts as much as possible.

Typically, it is easier to achieve both of the above intents: suitability for industrial business operations and the minimization of off-site impacts, in newly developing communities with vacant land, than in developed areas and older, central city areas with a mix of uses in close proximity and with growth and change occurring. In fact, as the central parts of the region intensify and redevelop, the potential for off-site impacts from industrial activities increases. Further, as a result of recent market potentials for new uses in older industrial areas or nearby, some communities are becoming less tolerant of off-site impacts. Thus, in parts of the region, changing community attitudes and resultant land use policy changes toward industrial uses have shifted to put *more emphasis on minimizing off-site impacts*. As a result, the location options for heavier industrial uses, particularly uses with truck activity, are more limited.

Three Basic Types of Local Industrial Land Use Policies

There are three basic types of industrial land use strategies embodied in local land use policies and controls. They include the following:

- Industrial land use categories and zones;
- Impact-oriented standards and controls; and
- Industrial protection policies.

The key aspects of each type are summarized in Figure 12 and described below. The choice and applicability of each approach can depend on the strength of market demand for industrial and other uses in an area, on existing land uses and development patterns in the area, and on the goals and objectives of the local community.

a.) Industrial Land Use Categories and Zones

Typically, areas designated for industrial land uses within Bay Area communities are identified by one or two, and sometimes three, land use categories. The industrial land use categories are typically broadly defined to allow a range of uses, that can include heavy industrial, manufacturing, transportation, warehouse and distribution, storage, research and development, light industrial, service commercial, repair, and other uses. Often, the industrial categories allow for mixed industrial areas under the logic that if heavy industrial uses are allowable in an area, other industrial and business uses with less potential impacts also are allowed. Allowable development densities can cover a range from low to medium densities, typically reflecting the overall intensity and pattern of development in the community. As the regional economy and real estate market is shaping significant changes in older industrial areas, long-standing industrial categories are being updated to new categories that address the differing needs of more traditional manufacturing and warehouse and distribution uses and those of newer types of light manufacturing, research and development, and other uses evolving in industrial areas.

Examples of industrial land use categories from local *General Plans* for communities in the major industrial market areas in the central parts of the region are presented in Figure 13. The first example from the City of South San Francisco shows an all-inclusive mixed industrial category that allows a fairly broad range of uses. The second example from the City of Oakland shows a case with two industrial/business land use categories, one focused on more traditional industrial uses, particularly heavier industrial uses with the potential to create off-site impacts, and the other category more broadly defined to include a mix of uses. The third example from the City of San Leandro includes two, fairly broadly defined general and light industrial categories. The fourth example from the City of Richmond shows three industrial land use categories for industrial/office flex, light industrial, and heavy industrial uses. Review of the uses included in the industrial categories in the examples, provides a good idea of the range of uses typically permitted in industrial areas.

The designation of fairly broadly defined general industrial land use categories allows flexibility for businesses seeking industrial space and for property owners seeking tenants. The approach also works in older industrial areas that typically include a mix of types of industrial facilities and activities. The approach allows the market the flexibility to dictate the uses and the feasibility of development within the parameters set by local policy, which are often fairly broad.

FIGURE 12
BASIC TYPES OF LOCAL INDUSTRIAL LAND USE POLICIES

- **Industrial Land Use Categories and Zones**
  - Broadly defined categories typically allow a range of uses including heavy industrial, manufacturing, transportation, distribution and warehousing, storage, research and development, light industrial, service commercial, repair, and other uses.
  - Categories updated as market supports changes in older industrial areas. Former industrial land use classifications shift to new categories to accommodate differing needs of more traditional manufacturing and warehouse uses and those of newer light manufacturing, high technology, and research and development/office uses.
  - Provides flexibility for businesses and property owners.
  - Allows market to dictate uses and feasibility of development within general parameters set.
  - Allows market to adapt to changing economic and real estate market conditions; transition from lower- to higher-value uses reduces location options for goods movement businesses.
  - Can permit a mix of uses that is problematic for operations of goods movement businesses.
- **Impact-oriented Standards and Controls**
  - Focus on characteristics of industrial business operations or facilities that are problematic and cause unacceptable off-site impacts.
  - Standards can be used as basis of permitted and prohibited uses in specific locations.
  - Standards also can be used to identify minimum thresholds for location/operation in specified areas, encouraging operations and conditions that mitigate impacts.
  - Standards and criteria relating to truck usage can be most problematic for goods movement businesses, and can reduce location options, particularly in central parts of the region.
- **Industrial Protection Policies**
  - Intent is to identify areas where industrial uses can function well and to adopt zoning and other land use policies and controls intended to protect the long-term viability of selected industries in these areas.
  - Can be difficult to get support for this type of strategy from property owners and local community.
  - Support for this strategy is most likely in communities with economic development and employment goals and constituencies.
  - Industrial protection strategies are relatively new in Bay Area; are examples nationally that could provide models.

FIGURE 13
EXAMPLES OF *GENERAL PLAN* INDUSTRIAL LAND USE CATEGORIES FOR BAY AREA COMMUNITIES

City of South San Francisco General Plan, adopted October 1999

- **Mixed Industrial**

  This designation is intended to provide and protect industrial lands for a wide range of manufacturing, industrial processing, general service, warehousing, storage and distribution, and service commercial uses. Industries producing substantial amounts of hazardous waste or odor and other pollutants are not permitted. Unrelated retail and service commercial uses that could be more appropriately located elsewhere in the city would not be permitted, except for offices, subject to appropriate standards. Small restaurants and convenience stores would be allowed as ancillary uses, subject to appropriate standards. The maximum Floor Area Ratio is 0.4, with an increase to a total FAR of 0.6 for development undertaking or participating in off-site improvements as specified in the Zoning Ordinance. In addition to development standards, the Zoning Ordinance may include performance standards to minimize potential environmental impacts.

City of Oakland General Plan Land Use and Transportation Element, 1998

- **General Industry and Transportation**
  - *Intent*: The General Industry and Transportation classification is intended to recognize, preserve, and enhance areas of the City for a wide variety of businesses and related establishments that may have the potential to create off-site impacts such as noise, light/glare, truck traffic, and odor. These areas are characterized by sites with good freeway, rail, seaport, and/or airport access.
  - *Desired Character and Uses:* A wide variety of uses are included, such as heavy industrial and manufacturing uses, transportation, railyards, maritime terminals, distribution and warehousing, food processing, heavy impact research and development facilities, and other uses of similar or supporting character. The maximum FAR for this classification is 2.0.
- **Business Mix**
  - *Intent:* The Business Mix classification is intended to create, preserve and enhance areas of the City that are appropriate for a wide variety of business and related commercial and industrial establish-ments. High impact industrial uses, including those that may have hazardous materials on-site, may be allowed provided they are adequately buffered from residential areas. High impact or large-scale commercial/retail uses should be limited to sites with direct access to the regional transportation system.
  - *Desired Character and Uses:* These areas may accommodate a mix of businesses such as light industrial, manufacturing, food processing, commercial, bioscience and biotechnology, research and development, environmental technology, business and health services, air, truck and rail-related transportation services, warehouse and distribution facilities, office, and other uses of similar business character. The maximum FAR for this classification is 4.0.

(continued on next page)

FIGURE 13 (continued)
EXAMPLES OF *GENERAL PLAN* INDUSTRIAL LAND USE CATEGORIES FOR BAY AREA COMMUNITIES

City of San Leandro General Plan Update 2002

- **General Industrial**

  General industrial areas are characterized by a wide range of manufacturing, transportation, warehousing, vehicle storage, and distribution uses. Such uses may be subject to performance standards to avoid adverse off-site effects. Allowances for retail stores and requirements for buffering where General Industry abuts residential areas are specified by *General Plan* policy. Floor area ratios may be as high as 1.0 on smaller parcels, but are generally in the range of 0.4 to 0.6.

- **Light Industrial**

  Light industrial areas are characterized by wholesale activities, distribution facilities, research and development or e-commerce uses, business services, and manufacturing operations which produce minimal off-site impacts. The designation also includes campus-style industrial parks. Uses in areas with this designation should be capable of locating adjacent to residential areas without creating adverse effects. Allowances for retail stores within these areas is guided by *General Plan* policy. Floor area ratios may be as high as 1.0 on smaller parcels, but are generally in the range of 0.4 to 0.8.

City of Richmond General Plan Land Use Element, 1994

- **Industrial/Office Flex**

  These industrial activities are generally limited to light manufacturing, light assembly, research, product development and testing, engineering and sales development, other research functions leading to new product development and marketing, publishing, printing, and small distribution facilities using small delivery trucks. Manufacturing activities are limited to non-nuisance light manufacturing and assembly, and pilot plant operations for manufacturing and testing of prototype products. Types of uses that would be found within this category include: laboratories, biotechnology and high technology uses, light assembly, retail-warehouses, and comparable types of uses. Commercial offices including corporate headquarters could be found within this category. Retail uses are generally limited to those providing support services or which are regional serving and sell in bulk warehouse quantities. Warehousing is allowed only when strictly ancillary to the primary uses or determined, on a case-by-case basis, to be compatible with the area through the use permit process. (FAR – not to exceed 0.50)

- **Light Industry**

  In addition to the types of uses permitted under the Industrial/ Office Flex category, the uses within this category include warehousing, distribution centers, commercial nurseries and related establishments which have limited external impact on the surrounding area. It is assumed that these uses are located within open and attractive settings where development is carefully controlled to ensure compatibility between the industrial operations and other activities in the area. Where light industrial uses are adjacent to residential neighborhoods, particular care should be given to "buffer" the uses. Support retail/service uses may be found within this category. (FAR – not to exceed0.65)

- **Heavy Industry**

  This category accommodates a wide variety of industrial uses including, but not limited to, oil refining, contractors' storage yards, warehouses, machine shops, co-generation plants, and other "heavy" industrial type uses. The industrial activities are traditionally larger scale and include very little to no office space. Most patently obnoxious uses are in this category and require conditional use permits. (FAR – not to exceed 0.65)

Live/work environments are permitted within each of the industrial categories (above) in accordance with provisions provided in the Richmond Zoning Ordinance.

The flexibility allowed by the designation of fairly broad industrial land use categories also allows the market flexibility to adapt to changing economic and real estate market conditions over time. There can be significant changes in industrial areas over time, in the types of uses in existing space and in the new construction that is occurring. Transitions from lower- to higher-value uses over time reduces the location options for many types of goods movement businesses. Changes can also permit a mix of uses that can be problematic for the operations of goods movement businesses. In most communities, the current land use designations and zones do not prohibit more intensive, higher-value uses from locating in industrial use zones, at least within the range of uses permitted. At the point where changes in *General Plan* land use designation, zoning, and/or densities are needed and initiated, public policy debate on whether to allow new uses in the area is often not relevant because real estate market conditions are already beyond the levels supported by many industrial uses including goods movement industries.

There are examples of older industrial areas adapting to market changes over time and transitioning to higher-value uses within the allowable industrial use categories. Over time, the transition continues and can lead to changes in *General Plan* land use designations to allow other new uses and higher-density development. Examples include older industrial areas such as those in Emeryville, West Berkeley, the Jack London District and parts of West Oakland, and the eastern parts of San Francisco, where artisans, live/work studios and lofts, technology-related entrepreneurs, research and development businesses, music studios, and architects and designers studios have moved into industrial areas. These new uses increase rents and property values and enhance the desirability of the industrial area for other higher-value uses. Initially, they facilitate the upgrading and reuse of the existing building stock, and eventually support additional new development. Over time, the viability of the area for traditional manufacturers, warehouse, distribution, and trucking uses declines, and these uses seek new locations.

Other examples include older industrial areas such as those in San Leandro and other parts of Oakland, where live/work, self storage, cash and carry and discount outlet wholesale/retail businesses, manufacturers with retail showrooms, and even retail businesses have moved into the area. These uses also increase rents and values. They bring the public into the area along with more automobile trips, that can conflict with truck usage and create opposition to truck activities. As these transitions occur, rents and values increase to levels above those for most goods movement industries.

Over time, as the market context changes and transition occurs, communities often update their *General Plan* land use categories and permitted uses to reflect more current conditions. Similarly, the locations designated under an industrial land use category are also changed over time in response to changing conditions. This process typically supports the continuing transition and upgrading of industrial areas.

An example is provided by the changes considered for industrial land use designations in Hayward, in response to changing market conditions along the city's industrial corridor. The intent of the update was to make changes in land use designations and zoning districts to better accommodate new, high technology manufacturing, research and development, and office uses,

and the type of campus-style development that these uses often occupy while still retaining areas for more traditional manufacturing and warehouse uses.

Another example of these types of changes is provided by the update of Oakland's *General Plan* Land Use and Transportation Element in 1998. It had been many years since the *General Plan* had been updated, market trends had changed substantially with renewed interest in this part of the Inner East Bay. Further, several military bases had been decommissioned in Oakland, the I-880/Cypress Freeway had been relocated further to the west after demolition by the Loma Prieta Earthquake, and Oakland's seaport and airport had been experiencing substantial growth.

Oakland's *General Plan* update revised the City's land use categories from the earlier, fairly standard industrial and commercial categories to include new categories reflecting the wide range of uses now locating in parts of the city. The *General Industrial/Transportation* land use classification was narrowed to focus on heavier industrial uses including transportation and goods movement industries, and this designation was given to the seaport area, the airport area, and East Oakland industrial areas along San Leandro Street. A new *Business Mix* classification was created to recognize the mix of uses and transitions occurring in parts of the city. The *Business Mix* classification allows for a wide range of industrial and commercial businesses, including industrial, light industrial/R&D, office, and other commercial uses (see the description of the *Business Mix* classification in Figure 13). The *Business Mix* classification has a higher allowable FAR, further supporting transition to higher-valued uses where market potentials exist. Thus, while the *General Industrial/Transportation* classification reserves areas for industrial uses, the new *Business Mix* classification, in effect, allows for industrial uses to remain or locate in an area until market potentials become evident for higher-valued uses. The new *Business Mix* classification also recognizes the proximity of industrial and residential uses and requires buffering of residential areas from high-impact uses (as discussed further in the discussion of performance standards and overlay zones in the next section).

Oakland's updated *General Plan* designated all of the business areas in West Oakland outside of the seaport area and all those on the east side of the relocated I-880/Cypress Freeway as *Business Mix*, not *General Industrial/Transportation*. It also designated the former railroad and industrial areas along the I-880 freeway through the central and eastern parts of Oakland as *Business Mix*. In West Oakland, these changes are in support of market trends, local community concerns about the local impacts of increasing truck traffic as seaport activities grow, and local community policies for the revitalization of the West Oakland community as facilitated by relocation of the I-880/Cypress Freeway and the West Oakland Redevelopment Project Area. The new designations for areas along I-880 also are in support of market trends and community plans to revitalize Oakland's Estuary waterfront. However, in the broader context of regional goods movement, these are examples of how market trends supported by local policies are affecting the longer-term availability of industrial locations for goods movement industries in the

central parts of the region, in proximity to growing business and consumer markets and to regional seaport and airport facilities.[11]

b.) Impact-oriented Standards and Controls for Industrial Uses

A second group of local land use policies and controls includes those using performance standards relating to the off-site impacts of industrial uses. The performance standards typically identify the characteristics of business operations or facility design/upkeep that are problematic and cause unacceptable off-site impacts. The standards can be used as the basis for decisions on permitted uses in specific locations. For example, regardless of whether a land use is permitted (as identified by industrial land use classifications of the types described above), businesses of any type with various characteristics and impacts would not be allowed in specified areas or in certain types of locations (such as those within specified proximity of residential uses). The standards also can be used to encourage changes in business operations and processes or in facility design and upkeep so as to mitigate impacts and allow for location/operation in specific areas.

The types of off-site impacts and aspects of industrial operations that are problematic to local communities typically include the following:

- Truck activity, which can create traffic, noise, safety issues, air quality impacts, and/or land use conflicts;
- Noise, lights/glare, odors and/or emissions associated with on-site activities and industrial processes;
- Presence/use of hazardous materials; and/or
- Facility upkeep, landscaping, fencing, vehicle/truck parking, etc.

By focusing on specific impacts and aspects of industrial operations or facilities, and not type of land use, *per se*, local policies and controls of these types directly target the impacts of concern.

For businesses in the goods movement industries, performance standards and criteria relating to truck usage can be the most problematic. They can reduce location options for goods movement businesses, particularly in the more densely developed, central parts of the region where land use conflicts from trucking activities are the most likely.

[11] It can be further noted that there currently are large residential development proposals in West Oakland and along I-880 and the Estuary that would require changes in the *Business Mix* and *Estuary Plan* designations to allow residential development. The residential proposals are examples of the types of development needed to achieve the higher levels of housing and population growth in Oakland that are identified in the Smart Growth Forecast recently prepared by ABAG (*P2003*). They also are examples of changes in market potentials for sites in former railroad and maritime (bulk cargo terminal) use. The railroad property was sold to the private sector during the boom in the late 1990s, after the freeway was relocated to the west. The maritime property is owned by the Port of Oakland, which is currently negotiating with a private sector development team.

Figure 14 provides examples of targeted zoning controls and special regulations directed at off-site impacts. The examples focus on policies and controls to minimize impacts and provide buffers between industrial uses/activities and nearby residential uses. The first example, identifies an industrial-residential transition zone designed to buffer residential uses from heavier industrial uses otherwise allowed under the land use classification system. The zone was adopted as an interim control in West Oakland during the process of rezoning in line with the new *General Plan* land use designations. The transition zone identifies locations where new or expanded industrial uses of the specified types are prohibited. It also specifically prohibits any new or expanded truck or truck-related uses as well as business operations with three or more trucks as an accessory use which are close to residential areas. Existing non-conforming uses are allowed to remain but cannot be expanded.

The second example, also from West Oakland, identifies an ordinance establishing special regulations applying to truck-related activities. Under the ordinance, a conditional use permit is required for expansion or establishment of any truck or truck-related use in the area covered by the ordinance. The effect is likely to be the prohibition of most new truck activities and the phasing out of existing uses with truck usage over time.

The third example provides language from San Leandro's *General Plan* concerning strategies and standards intended to improve the interface between industrial/business districts and adjacent residential neighborhoods. The *General Plan* also establishes a buffer zone around industrial districts with zoning and performance standards to encourage businesses with minimal off-site impacts in these areas.

To some extent, the focus on truck-related activities in the West Oakland examples in Figure 14 is in response to the specific problems and community concerns in West Oakland. However, the adoption of special transition and buffer zones around high impact industrial uses, and the establishment of special regulations applying to businesses with truck usage could become more prevalent in the central areas of the region as regional growth intensifies and results in a greater mix of residential, commercial, and industrial uses in areas along the region's central transportation corridors. Further, the experience in West Oakland raises the larger regional issue of needing to preserve other existing industrial areas that are still relatively separate from residential uses so as to prevent more land use conflicts in the future.

c.) Industrial Protection Policies

Another approach to industrial land use policy, particularly for heavy industrial and goods movement uses in central areas, is to identify areas where uses of these types can function well and to adopt zoning and other land use policies and controls intended to "protect" their long-term viability there. The strategy would be to allow a fairly narrow list of types of permitted uses and to prohibit all other types of uses in these areas, including other types of industrial uses. Development controls (floor area ratios, setbacks, etc.) also would be tailored to the specific types of uses desired, and would limit the potential for development at higher densities. Factors affecting the viability of the desired types of industrial activities, such as

FIGURE 14
EXAMPLES OF IMPACT-ORIENTED LAND USE POLICIES AND CONTROLS

City of Oakland

- **Industrial-Residential Transition Zone:** Interim S-16 Combining District in West Oakland

  The intent of this District is to create a buffer between heavier industrial uses allowed under existing zoning and residential uses. It also is designated to promote lighter industrial and commercial business activities. The district creates a buffer by limiting some activities and requiring special standards where businesses abut, are across from, or are very close to residential activities; set higher standards for all new development (landscaping, screening, setbacks, buffer strips); and require design review for development on major thoroughfares. The district prohibits new or expanded industrial uses of the following types: transport and warehousing, scrap operations, general and heavy manufacturing, and small-scale and industrial transfer/storage of hazardous waste. It specifically prohibits any new or expanded truck or truck-related uses as well as business operations with three or more trucks as an accessory use with a gross weight over 4.5 tons and which are close to residential areas. Existing non-conforming uses are allowed to remain, but cannot be expanded.

- **Regulations on Truck-related Activities**

  Special regulations applying to truck-related activities in the West Oakland Community Development District:

  - Use Permit Required. No truck and truck-related activity shall be established or expanded in the West Oakland Community Development District except upon the granting of a conditional use permit.
  - "West Oakland Community Development District" is defined to include all areas between Interstate 980 to the east, 3rd Street to the south, Interstate 880 to the west, and Interstate 580 to the north.
  - The term "Truck" shall be defined as a "Commercial Vehicle" having a "Manufacturer's Gross Vehicle Weight Rating" exceeding ten thousand (10,000) pounds or a "Trailer," as those terms are defined in the *California Vehicle Code.* (Ord. 12289 ∋4 (part), 2000).

City of San Leandro

- **Buffering and Design Policies** (from *General Plan*)

  One of San Leandro's top land use priorities is improving the interface between business districts and adjacent residential neighborhoods. In some parts of the City, the lack of separation between homes and industry has resulted in conflicts associated with noise, odors, and other off-site impacts. Aesthetics also may be an issue in these areas, for example, where outdoor storage or bulky warehouses abut single family backyards.

  Business and Industry policies ensure that San Leandro businesses are good neighbors to the residential areas they adjoin. Strategies for improving land use compatibility include special zoning standards to address off-site impacts and establishing conditions of approval when new business projects are approved. Other strategies include landscaping and fencing requirements, and special parking and access provisions. As older properties and obsolete buildings along the residential-industrial interface are vacated or sold, the City will encourage their reuse with activities that can co-exist with either industry or housing. Such uses might include offices, light industry, open space, and live-work space.

  The *General Plan* Land Use Diagram establishes a light industrial *buffer zone* along the perimeter of the West San Leandro industrial district. It also designates most of the area south of Marina and east of I-880 for light industry. Zoning within this area should encourage businesses with minimal off-site impacts. Standards for new developments should require more extensive screening and should establish appropriate limits on operations where there might otherwise be impacts to nearby homes.

distance from residential areas, good freeway accessibility, wide streets and large parcels, etc., should be carefully considered before designating this type of "industrial protection zone". Public investment in any needed capital infrastructure improvements can also be beneficial. Attention should be given to the potential for off-site impacts and to taking proactive steps to minimize such impacts, as much as possible. Self policing on the part of the industries in the area also can contribute to the long-term viability of industrial protection zones.

Despite the logic of such a strategy, it can be difficult to build support for implementation of an industrial protection approach from property owners and the local community. By definition, the need for industrial protection policy arises because of market potentials for higher-value uses. Typically, the incentives and local benefits of a protectionist approach primarily accrue to the industrial businesses/tenants and to businesses and consumers in the larger regional economy. However, the sacrifices can require that local property owners forego higher property values, which is likely to be unacceptable except perhaps for industrial owner-occupants, at least for a time (as even they can be expected to want to eventually earn higher financial return on investments in their property). As identified earlier in this report, there also are other benefits from redevelopment/reuse to higher-value uses that accrue to local government and the local community more broadly that make it difficult to gain and keep support for an industrial protection strategy, particularly over the longer term.

The most likely support for industrial protection strategies is in communities with economic development and employment goals and constituencies in support of encouraging and retaining traditional types of industries and the types of jobs they provide. Community recognition of the economic linkages between production, distribution, transportation, and other industries, and benefits they provide for other sectors of the economy also supports industrial protection strategies.

Industrial protection strategies are relatively new within the Bay Area. Their consideration will likely increase as market pressures continue to encourage the intensification and reuse/redevelopment of the central parts of the region with substantial amounts of existing industrial space.

There are some examples of where industrial protection policies are being considered in the Bay Area. Following up on the Oakland examples above, market pressures and recent changes in local industrial policies, particularly in West Oakland, are affecting the availability and cost of locations for goods movement businesses, particularly those that serve the Port of Oakland. Business representatives are advocating an industrial protection approach for zoning and other controls in East Oakland areas designated for *General Industrial/Transportation* uses in the City's updated *General Plan*. Such an approach could possibly succeed in East Oakland given the business support, city economic development goals, the characteristics of the industrial area, and current market conditions.

Industrial protection zones are currently proposed in San Francisco for retaining production, distribution and repair uses (referred to as "PDR uses") in specified areas in the

southeastern parts of the City. Consideration of industrial protection zones is part of a larger planning and rezoning effort addressing the needs for housing and jobs in San Francisco. The development of housing on industrial land in the City has raised issues of the need to retain PDR jobs and businesses in the City. Community interests focused on the benefits of continuing to expand the City's housing supply in industrial areas have played a major role in arguing against an industrial protection strategy. Others have argued that market pressures to upgrade industrial areas in the southeastern parts of the city are part of the overall growth and evolution of the region, and that higher costs of goods and services in San Francisco as a result of this trend would be trade-offs for the benefits associated with more housing, more commercial uses, and more higher-value technology and knowledge-based industries and office uses in the City. There also is the feeling that industrial uses priced out of San Francisco will find locations relatively nearby on the Peninsula or in the East Bay (without consideration for the competitive pressures and community objectives in those other locations). The arguments in favor of an industrial protection strategy are based on the goods and services that PDR uses provide to residents and businesses in San Francisco, on the diversity of entrepreneurial and blue-collar employment opportunities they support, and on the basis of retaining a socially and economically diverse mix of land uses and business activities in San Francisco. A *Rezoning Options Report* has been prepared by the City for public review, to serve as the basis for policy decisions about how much housing should be placed on industrial land and how much land should be provided for production, distribution, and repair activities.

The current policy debate in San Francisco regarding the needs for housing and jobs, and the extent that development of housing should be allowed on industrial land, provides an example of what is likely to occur in the future in other central parts of the region, particularly in the East Bay. Further, it is the type of policy evaluation that should occur on a regional level in relation to the implementation of the Smart Growth Vision for the Bay Area.

There are examples of comprehensive industrial protection strategies and proposals in other regions and other parts of the country. These could be evaluated further to provide models for the Bay Area.

Other Local Policies and Regulations Affecting Truck Activity and Goods Movement Industry Operations

Separate from local land use policies and regulations affecting the location options for goods movement businesses with truck activity, there are other local policies and regulations regarding truck parking, truck routes, and truck deliveries that can affect the costs and efficiencies of goods movement businesses and trucking operations in the Bay Area. Generally, these types of policies and regulations are enacted at the local level to address nuisances and community impacts.

Truck Parking

Truck parking is an issue in Bay Area communities, particularly those along the major freeway routes. Many communities have enacted prohibitions on truck parking in residential and

commercial areas. Overnight parking, in particular, is seen as a persistent problem in communities, and is perceived as a nuisance, a noise problem, and a security problem. The parking of tractors and/or trailers close to intersections and driveways obscures vision and can pose safety problems as well.

The problems associated with truck parking arise because of the shortage of truck parking facilities outside of trucking terminal areas in the Bay Area, and the need for such parking to support the operations of the trucking industry. The need for truck parking outside of trucking terminals can usually be traced to the following reasons:

- *Owner-operator truckers* need a place near their homes to park their tractor and trailer (if any) overnight. Owner-operators can include those driving under contract for truckload firms, those driving locally for drayage companies, and others. This factor accounts for a large share of truck parking in residential areas.

- *Short-term waiting* by out-of-town truckers making scheduled delivery or pickup appointments (especially those serving critical production schedules) who typically arrive early and need a place to park while waiting. This can be important if truckers try to avoid rush hours or erratic traffic congestion. Some very large customers may have room for off-street parking, but more commonly, the trucker must park somewhere else nearby. Older industrial and commercial areas rarely have enough off-street parking for trucks.

- *Overnight parking by long-haul truckload carriers* who typically need a place to park and sleep before a morning appointment, since they often arrive the previous night. They may also need a place to park and sleep or rest while waiting for an outbound load. Truck stops with large parking lots and other facilities for truckers are set up for this, but there are no such facilities in the immediate Bay Area. This need can result in truck parking in shopping center parking lots, on the street, or in motel parking lots.

- *Trailer drops*. Truckers without local lots or yards often need a place to drop a trailer for later pickup (hours or even days later). Well-organized truckers will use a regular location at a truck stop or other secure facility, but in the absence of that option, they and others will use vacant lots, street parking, shopping center parking lots, or other locations convenient to drivers.

The lack of truck parking areas results in truck parking on city streets, vacant lots, or shopping center and other parking areas. Local restrictions on such parking further exacerbate parking needs. The shortage of truck parking reduces the ability of the motor carrier industry to serve customers in the region efficiently and expeditiously and causes friction with nearby communities.

Motor carrier surveys indicate truck parking problems throughout the Bay Area. Surveys done in the East Bay I-880 corridor cited widespread truck parking problems in Hayward, San Leandro, Oakland, Union City, Fremont, and Newark, for example.[12] Truck parking problems are apparently getting worse as increasing volumes of freight must be delivered using a diminishing supply of legal parking.

Without changes, truck parking problems will get worse over time. Recommendations for addressing parking problems have included consideration of some type of regulated permit truck parking, comprehensive and consistent signage on parking restrictions, and development of truck stop and/or public truck parking facilities in one or more central locations. Affected cities also should work with the industry to consider the needs for adequate truck parking and access in new commercial and industrial developments and revise planning and zoning requirements as needed to assure that newly developed facilities begin to address truck parking needs.

Truck Routes

There are numerous local regulations identifying permissible truck routes and streets restricted to truck traffic. Truckers interviewed in the East Bay identified the following types of problems with existing regulations, from their perspective:[13]

- Inadequate truck routes, making it difficult for truckers to serve customers while obeying the restrictions. (As examples, Union City, Fremont, Newark, and Alameda were cited for shortfalls in the truck routing system.)

- Inadequate signage, making it difficult for the truckers to stay on a truck route or avoid restricted streets. (Signage problems in Oakland and San Leandro were identified as examples.)

- Inconsistent policies, weight restrictions, and other differences between jurisdictions fragment the system, and make it difficult for truckers to obey all the laws.

- Discontinuous truck routes, especially the lack of connectivity between truck routes or between truck routes and freeways, are problematic. (For example, the Whipple Road truck route was cited by respondents for not connecting with Mission Blvd. in Hayward.)

Well-chosen and well-marked truck routes are critical in facilitating efficient trucking without undue impacts in local communities. Broader, areawide and regional coordination in mapping connecting truck routes could eliminate some of the problems, as could standard signage and

[12] Surveys done for the *I-880 Corridor Study* for MTC and the *Port Services Location Study* for the Port of Oakland, in 1999-2001.

[13] Ibid.

periodic field checking to assure that signage is current and visible. Coordinated efforts to disseminate route information to truckers also could provide improvements.

Truck Deliveries

There also are local regulations in many communities specifying the hours for truck deliveries to retailers, particularly in locations within or near to residential areas. Frequent deliveries of perishable food items to grocery stores around the region can be particularly problematic in local communities as many supermarkets are located in close proximity to residences. The noise from large truck parking maneuvers, refrigeration systems, and the unloading of goods can be particularly disturbing to nearby residents during the nighttime hours. However, overnight deliveries when traffic is less and retailers have time to restock shelves are efficient for grocery store operations. Similar problems and efficiencies are associated with overnight deliveries to other major retailers in locations near to residences. As a result, local regulations on hours of delivery and noise ordinances often require that deliveries occur during the day or early evening hours. Local regulations on the location of store loading docks and their design and construction (*i.e.*, enclosed areas, recessed loading areas, sound walls, etc.) can help in mitigating noise impacts.

ADDITIONAL TABLES

TABLE 19
POPULATION AND JOB GROWTH 2000-2025
ABAG *PROJECTIONS 2003* COMPARED TO *PROJECTIONS 2002*

	Household Growth			Population Growth			Job Growth		
	P2002	P2003	Difference	P2002	P2003	Difference	P2002	P2003	Difference
San Francisco	19,290	52,110	32,820	38,467	113,067	74,600	136,070	151,590	15,520
San Mateo Co. - 101 Corridor North	6,593	8,743	2,150	21,014	25,774	4,760	38,510	43,010	4,500
San Mateo Co. - 101 Corridor South	17,511	24,461	6,950	51,630	70,630	19,000	57,820	54,400	(3,420)
Santa Clara Co. - I-80 / 101	109,276	153,076	43,800	318,298	449,898	131,600	264,920	298,730	33,810
Alameda Co. - I-80 / 880 Corridor	57,305	86,925	29,620	181,965	260,365	78,400	189,330	207,370	18,040
Contra Costa Co. - I-80	11,667	18,237	6,570	28,812	48,212	19,400	24,140	28,050	3,910
Solano Co. - I-80 / 780 / Carquinez	11,400	13,760	2,360	30,755	39,455	8,700	19,480	22,600	3,120
Total - Central/Bayside	**233,042**	**357,312**	**124,270**	**670,941**	**1,007,401**	**336,460**	**730,270**	**805,750**	**75,480**
San Mateo Co. - Rest	10,713	9,213	(1,500)	33,495	30,845	(2,650)	9,770	13,170	3,400
Santa Clara Co. - Rest / West	4,862	4,552	(310)	13,738	11,338	(2,400)	10,310	4,970	(5,340)
Contra Costa Co. - Central Co.	26,608	27,298	690	63,717	62,517	(1,200)	45,410	43,620	(1,790)
Marin Co.	13,880	13,140	(740)	34,111	32,311	(1,800)	40,310	35,280	(5,030)
Total - Other Central	**56,063**	**54,203**	**(1,860)**	**145,061**	**137,011**	**(8,050)**	**105,800**	**97,040**	**(8,760)**
Santa Clara Co. - South 101	15,169	9,859	(5,310)	49,579	31,979	(17,600)	28,270	22,780	(5,490)
Alameda Co. - Tri-Valley	31,009	31,919	910	88,494	91,694	3,200	73,180	69,570	(3,610)
Contra Costa Co. - Tri-Valley	15,603	16,573	970	41,508	42,208	700	24,340	24,210	(130)
Contra Costa Co. - East Co.	45,503	38,683	(6,820)	127,047	114,647	(12,400)	40,460	48,450	7,990
Subtotal - East	*92,115*	*87,175*	*(4,940)*	*257,049*	*248,549*	*(8,500)*	*137,980*	*142,230*	*4,250*
Sonoma Co.	50,007	37,597	(12,410)	131,186	98,886	(32,300)	105,780	98,480	(7,300)
Napa Co.	16,048	10,988	(5,060)	40,121	27,021	(13,100)	26,210	20,230	(5,980)
Solano Co. - I-80 / North	36,092	33,412	(2,680)	109,371	98,671	(10,700)	38,680	36,700	(1,980)
Solano Co. - Rest	13,435	8,875	(4,560)	36,632	24,532	(12,100)	5,930	5,920	(10)
Subtotal - North	*115,582*	*90,872*	*(24,710)*	*317,310*	*249,110*	*(68,200)*	*176,600*	*161,330*	*(15,270)*
Total - Outlying/Rest of Region	**222,866**	**187,906**	**(34,960)**	**623,938**	**529,638**	**(94,300)**	**342,850**	**326,340**	**(16,510)**
TOTAL BAY AREA	**511,971**	**599,421**	**87,450**	**1,439,940**	**1,674,050**	**234,110**	**1,178,920**	**1,229,130**	**50,210**

Source: ABAG *Projections 2003*; ABAG *Projections 2002*; Hausrath Economics Group

TABLE 20
POPULATION AND JOB TOTALS AND GROWTH 2000-2025
ABAG *PROJECTIONS 2003* COMPARED TO *PROJECTIONS 2002*

	Household Growth						Population Growth						Job Growth					
		P2002		P2003				P2002		P2003				P2002		P2003		
	2000	2025	2000-2025	2025	2000-2025	Difference	2000	2025	2000-2025	2025	2000-2025	Difference	2000	2025	2000-2025	2025	2000-2025	Difference
San Francisco	329,700	348,990	19,290	381,810	52,110	32,820	776,733	815,200	38,467	889,800	113,067	74,600	634,430	770,500	136,070	786,020	151,590	15,520
San Mateo Co. - 101 Corridor North	56,887	63,480	6,593	65,630	8,743	2,150	154,566	175,580	21,014	180,340	25,774	4,760	141,310	179,820	38,510	184,320	43,010	4,500
San Mateo Co. - 101 Corridor South	129,299	146,810	17,511	153,760	24,461	6,950	343,770	395,400	51,630	414,400	70,630	19,000	208,590	266,410	57,820	262,990	54,400	(3,420)
Santa Clara Co. - I-80 / 101	495,004	604,280	109,276	648,080	153,076	43,800	1,475,302	1,793,600	318,298	1,925,200	449,898	131,600	1,013,540	1,278,460	264,920	1,312,270	298,730	33,810
Alameda Co. - I-80 / 880 Corridor	463,885	521,190	57,305	550,810	86,925	29,620	1,274,835	1,456,800	181,965	1,535,200	260,365	78,400	635,340	824,670	189,330	842,710	207,370	18,040
Contra Costa Co. - I-80	84,913	96,580	11,667	103,150	18,237	6,570	240,988	269,800	28,812	289,200	48,212	19,400	75,830	99,970	24,140	103,880	28,050	3,910
Solano Co. - I-80 / 780 / Carquinez	50,960	62,360	11,400	64,720	13,760	2,360	146,845	177,600	30,755	186,300	39,455	8,700	43,880	63,360	19,480	66,480	22,600	3,120
Total - Central/Bayside	**1,610,648**	**1,843,690**	**233,042**	**1,967,960**	**357,312**	**124,270**	**4,413,039**	**5,083,980**	**670,941**	**5,420,440**	**1,007,401**	**336,460**	**2,752,920**	**3,483,190**	**730,270**	**3,558,670**	**805,750**	**75,480**
San Mateo Co. - Rest	67,917	78,630	10,713	77,130	9,213	(1,500)	208,825	242,320	33,495	239,670	30,845	(2,650)	45,990	55,760	9,770	59,160	13,170	3,400
Santa Clara Co. - Rest / West	44,938	49,800	4,862	49,490	4,552	(310)	121,062	134,800	13,738	132,400	11,338	(2,400)	44,180	54,490	10,310	49,150	4,970	(5,340)
Contra Costa Co. - Central Co.	151,382	177,990	26,608	178,680	27,298	690	384,883	448,600	63,717	447,400	62,517	(1,200)	189,010	234,420	45,410	232,630	43,620	(1,790)
Marin Co.	100,650	114,530	13,880	113,790	13,140	(740)	247,289	281,400	34,111	279,600	32,311	(1,800)	122,960	163,270	40,310	158,240	35,280	(5,030)
Total - Other Central	**364,887**	**420,950**	**56,063**	**419,090**	**54,203**	**(1,860)**	**962,059**	**1,107,120**	**145,061**	**1,099,070**	**137,011**	**(8,050)**	**402,140**	**507,940**	**105,800**	**499,180**	**97,040**	**(8,760)**
Santa Clara Co. - South 101	25,921	41,090	15,169	35,780	9,859	(5,310)	86,221	135,800	49,579	118,200	31,979	(17,600)	34,610	62,880	28,270	57,390	22,780	(5,490)
Alameda Co. - Tri-Valley	59,481	90,490	31,009	91,400	31,919	910	168,906	257,400	88,494	260,600	91,694	3,200	116,340	189,520	73,180	185,910	69,570	(3,610)
Contra Costa Co. - Tri-Valley	32,247	47,850	15,603	48,820	16,573	970	87,792	129,300	41,508	130,000	42,208	700	48,290	72,630	24,340	72,500	24,210	(130)
Contra Costa Co. - East Co.	75,587	121,090	45,503	114,270	38,683	(6,820)	235,153	362,200	127,047	349,800	114,647	(12,400)	47,980	88,440	40,460	96,430	48,450	7,990
Subtotal - East	*167,315*	*259,430*	*92,115*	*254,490*	*87,175*	*(4,940)*	*491,851*	*748,900*	*257,049*	*740,400*	*248,549*	*(8,500)*	*212,610*	*350,590*	*137,980*	*354,840*	*142,230*	*4,250*
Sonoma Co.	172,403	222,410	50,007	210,000	37,597	(12,410)	458,614	589,800	131,186	557,500	98,886	(32,300)	205,220	311,000	105,780	303,700	98,480	(7,300)
Napa Co.	45,402	61,450	16,048	56,390	10,988	(5,060)	124,279	164,400	40,121	151,300	27,021	(13,100)	66,840	93,050	26,210	87,070	20,230	(5,980)
Solano Co. - I-80 / North	64,448	100,540	36,092	97,860	33,412	(2,680)	202,029	311,400	109,371	300,700	98,671	(10,700)	72,290	110,970	38,680	108,990	36,700	(1,980)
Solano Co. - Rest	14,995	28,430	13,435	23,870	8,875	(4,560)	45,668	82,300	36,632	70,200	24,532	(12,100)	7,040	12,970	5,930	12,960	5,920	(10)
Subtotal - North	*297,248*	*412,830*	*115,582*	*388,120*	*90,872*	*(24,710)*	*830,590*	*1,147,900*	*317,310*	*1,079,700*	*249,110*	*(68,200)*	*351,390*	*527,990*	*176,600*	*512,720*	*161,330*	*(15,270)*
Total - Outlying/Rest of Region	**490,484**	**713,350**	**222,866**	**678,390**	**187,906**	**(34,960)**	**1,408,662**	**2,032,600**	**623,938**	**1,938,300**	**529,638**	**(94,300)**	**598,610**	**941,460**	**342,850**	**924,950**	**326,340**	**(16,510)**
TOTAL BAY AREA	**2,466,019**	**2,977,990**	**511,971**	**3,065,440**	**599,421**	**87,450**	**6,783,760**	**8,223,700**	**1,439,940**	**8,457,810**	**1,674,050**	**234,110**	**3,753,670**	**4,932,590**	**1,178,920**	**4,982,800**	**1,229,130**	**50,210**

Source: ABAG *Projections 2003*; ABAG *Projections 2002*; Hausrath Economics Group